

To The Reader:

In the four years since its inception, Program Executive Office (PEO) Soldier has been dedicated to providing our Soldiers with the best possible equipment America can provide. This Portfolio describes the 376 programs that PEO Soldier directs. Soldiers now have confidence in their equipment and know that the United States Government, the Army, and the Congress are providing them the resources and equipment they need for victory on the battlefield. I hope you will find the Portfolio a useful information resource.

In April 2002, the Assistant Secretary of the Army for Acquisition, Logistics, and Technology established Team Soldier at Fort Belvoir, Virginia, with one mission: to develop, acquire, field, and sustain virtually everything the Soldier wears, carries, and operates to increase combat effectiveness, save Soldiers' lives, and improve Soldiers' quality of life. It is a broad mandate, one that ten Project and Product Managers and their committed staffs continue to embrace as integral to the Army's transformation to the Future Force.

This year's Portfolio honors the Soldier as the heart of the Army, the key component in all systems and all operations. It is my personal belief that America's fighting men and women are the best fighting force that the world has ever seen—as demonstrated by their intelligence, their drive, their dedication, and their will to win. I am firmly convinced that it is our job to provide them with the means for victory.





R. Mark Brown

Brigadier General, USA Program Executive Officer Soldier

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Program Executive Office (PEO) Soldier proudly celebrates the Soldier: the heart of the Army. The Soldier is the vital component of the Army, in peace or in war, for all systems and all operations. PEO Soldier is committed to getting our Soldiers the best equipment available as quickly as possible so that they have the gear they need to fulfill their vital mission, when they need it and where they need it.

PEO Soldier makes sure every Soldier is Geared To Go! Since its inception in 2002, PEO Soldier has been the vanguard of Army transformation with its strategic Soldier-as-a-System approach to designing, producing, and fielding Soldier equipment. PEO Soldier's Rapid Fielding Initiative (RFI) has equipped more than 600,000 Active and Reserve troops; by the end of FY07, RFI will equip the entire operating Army plus other potential deployers—a total of nearly 900.000 Soldiers.

As the War on Terrorism and the sense of urgency resulting from ongoing operations in Iraq and other parts of the world persist, PEO Soldier remains dedicated to equipping Soldiers to enable peak performance across the spectrum of military operations. PEO Soldier provides the ability to accomplish tasks and function in an integrated manner with increased confidence, while also saving Soldiers' lives and enhancing the quality of life.

PEO Soldier's approach to the Soldier-as-a-System strategy encompasses everything the Soldier wears or carries: it is designed to ensure that each piece of equipment fits into the overall design and integrates fully with other equipment. The Army doesn't deliver tanks without cannons. The U.S. Air Force doesn't deliver a fighter without engines. The Navy doesn't deliver submarines without torpedoes. And the Army cannot deploy our Soldiers—our most deployed combat system—without the gear they need to accomplish their mission.

SUCCESS STORIES

Many PEO Soldier initiatives demonstrate the effectiveness of the PEO Soldier concept and the Soldier-as-a-System strategy. To cite just a few examples:

The **Rapid Fielding Initiative (RFI)** began in November 2002 when PEO Soldier representatives met with Soldiers in Afghanistan to gather feedback about their equipment. RFI has accelerated procurement to provide more than 600,000 Soldiers with better equipment, based on spiraled technologies such as the **Advanced Combat Helmet** and **Ballistic Spectacles**.

The **Air Warrior** program also illustrates the effectiveness of the Soldier-as-a-System concept: Army aircrews deploying in support of Operation Iraqi Freedom and Operation Enduring Freedom have been equipped with this new-generation aircrew ensemble that provides advanced life support, ballistic protection, and chemical protection in a system of mission-configured modules.

The Air Warrior system enhances aircrew comfort, cockpit synergy, and aircraft mission capability and improves lethality, survivability, mobility, and sustainability. The system maximizes safe aircraft operation and human performance without encumbering the aircrew. Developed with interoperability in mind, it has leveraged several joint-service technology efforts. Previously, the separate development and application of aviation life-support equipment and mission equipment resulted in a layered, nonintegrated assemblage of protective/survival gear.

Other recent examples of PEO Soldier's success in meeting the needs of Soldiers include an improvement to the Interceptor Body Armor (IBA) known as the Deltoid Axillary Protector (DAP), and the Common Remotely Operated Weapon Station (CROWS).

DAP was developed in response to the improvised explosive device (IED) threats that Soldiers encounter in Iraq. Unlike conventional threats, which usually come from the front, back, or above, IEDs throw shrapnel and spall at Soldiers from below and from the sides. DAP enables Soldiers to cover shoulder and upper arm areas, as well as the armpit and underarm. The **Enhanced Side Ballistic Insert (ESBI)** system, consisting of protective plates, was developed to meet this threat and to provide an increased level of protection.

The original IBA design is open around the arms to allow air to circulate. But it is a modular design, which allows for protective additions. Soldiers in the field developed the DAP "prototype" themselves by using groin protectors, and PEO Soldier responded by adding the DAP improvement to the IBA system.

CROWS is a remote system that can be mounted on top of an armored vehicle, enabling gunners to acquire and engage targets using a joystick and display while remaining protected inside. Multiple CROWS prototypes have been deployed in support of Operation Iraqi Freedom. Potential future enhancements include the integration of other weapons and counter-sniper sensors.

Introduction

THE PEO SOLDIER TEAM

Headquartered at Fort Belvoir, Virginia, PEO Soldier designs, develops, procures, fields, and sustains virtually everything the Soldier wears or carries. By employing innovative concepts and technologies, PEO Soldier has made great strides in quickly getting improved equipment into the hands of Soldiers, especially those in Iraq and Afghanistan.

PEO Soldier headquarters is supported by three Project Managers (PMs) and the RFI Project Directorate. PM Soldier Warrior is responsible for Land Warrior, Air Warrior, and Future Force Warrior. PM Soldier Equipment has purview over Sensors and Lasers as well as Clothing and Individual Equipment (CIE); and PM Soldier Weapons manages both Individual and Crew Served Weapons. The RFI Directorate plans, coordinates, and fields RFI equipment to the units and Soldiers of the operating Army.



PROJECT MANAGER SOLDIER WARRIOR

PM Soldier Warrior (PM SWAR) supports Soldiers through the acquisition of Warrior systems: Land Warrior, Air Warrior, and Future Force Warrior. PM Soldier Warrior implements the Soldier-as-a-System concept through the acquisition of all Warrior systems. Land Warrior, Air Warrior, and Future Force Warrior programs provide significant improvements in tactical awareness, lethality, survivability, mobility, and sustainment.

The Product Managers apply the Soldier-as-a-System concept to develop components into individual, integrated systems designed to increase combat effectiveness, decrease combat load, and improve mission flexibility:

- PM Land Warrior integrates the Soldier into the digital battlefield and improves individual Soldier and small-unit battle command and tactical awareness.
- PM Air Warrior integrates all aviation life support and mission equipment into a single aircrew ensemble that enhances cockpit synergy and aircraft mission capability.
- In 2005, the Future Force Warrior (FFW) Advanced Technology Demonstration (ATD), a science and technology effort of the Natick Soldier Center, consolidated personnel with PM Soldier Warrior to jointly develop the Ground Soldier System (GSS), the next increment of the Land Warrior integrated, modular fighting system—as specified in one of four Soldier-as-a-System Capability Development Documents.

Whenever possible, technologies are "spiraled out" of these systems to get them to Soldiers quickly. Examples include the Commander's Digital Assistant, the Multi-Band Inter/Intra-Team Radio, and the Advanced Combat Helmet.

Product Manager Land Warrior

PM Land Warrior is developing the integrated Soldier System for Ground Soldiers. The system provides significant improvements in Soldier tactical awareness, lethality, survivability, mobility, and sustainment. PM Land Warrior's improved battle command and tactical awareness initiatives will improve individual and small unit combat effectiveness and reduce fratricide incidents among individual Soldiers.

Product Manager Air Warrior

PM Air Warrior develops and fields integrated Soldier systems for Army helicopter crew members. By integrating aviation life support and mission equipment into a single aircrew ensemble, PM Air Warrior enhances cockpit synergy and aircraft mission capability. This system leverages several joint-service technology efforts to create a total, modular system that increases freedom of movement at the flight controls, enhances mobility to safely operate aircraft systems, and facilitates ease of entry to and exit from the aircraft.

Technology Program Manager Future Force Warrior

The Ground Soldier System (GSS) jointly developed by PM FFW and FFW ATD will eventually provide advanced warfighting capabilities for all dismounted, maneuver support, and maneuver sustainment Future Force Soldiers. It will be interoperable within the Future Combat Systems (FCS) Unit of Action and employ a system-of-systems approach, optimizing and integrating components while reducing the Soldier's combat load and logistical footprint.

The system will include head-to-toe individual protection, networked communications for increased situational awareness and lethality, extended-duration Soldierworn power sources, physiological monitoring, embedded training capability, and significantly enhanced individual performance and combat team effectiveness.

PROJECT MANAGER SOLDIER EQUIPMENT

PM Soldier Equipment (PM SEQ) provides technical solutions that enhance Soldier lethality, survivability, and mobility on the battlefield. It supports the Soldier with a variety of highly advanced night vision and other technologies that enable Soldiers to "own the night." Its products also include:

- State-of-the-art personal and unit equipment such as man-portable laser technologies for illuminating, pointing, rangefinding, and designating targets
- Tactical and environmental protective clothing that enhances Soldier survivability
 against both man-made and environmental threats such as adverse weather
 conditions, small arms and fragmentation, and chemical, biological, radiological,
 nuclear, and explosive toxic industrial chemicals/toxic industrial material threats

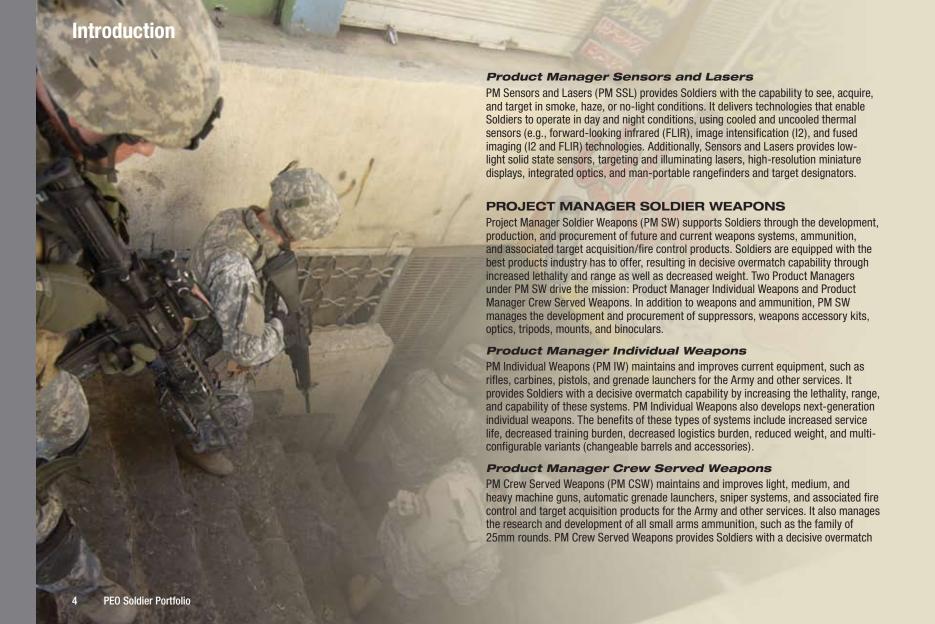
PM SEQ also provides individual airdrop equipment to provide Soldiers with enhanced capabilities for battlefield mobility. PM SEQ consists of three Product Managers: Product Manager Clothing and Individual Equipment, Product Manager Sensors and Lasers, and Product Manager Survivability.

Product Manager Clothing and Individual Equipment

PM Clothing and Individual Equipment (PM CIE) supports Soldiers throughout the full spectrum of military environments, from garrison to major theater war, from Army dress uniforms to tactical clothing and equipment, to special capability needs. PM CIE provides state-of-the-art individual and unit equipment that is safe and durable and gives Soldiers the capabilities they need to survive on the modern battlefield. PM CIE enhances survivability through technologically advanced tactical and environmental protective clothing, individual chemical protective gear, and personnel airdrop equipment.

Product Manager Survivability

Product Manager Survivability (PM SRV) is the newest addition to Project Manager Soldier Equipment. PM SRV provides Soldiers with enhanced capability for battlefield survivability, with state-of-the-art technology to defeat ballistic, blast, and flame threats.



capability by increasing the lethality and capability of their systems; it also provides the next generation of crew-served weapons for the Army. The **Common Remotely Operated Weapon Station (CROWS)** is one such example.

RAPID FIELDING INITIATIVE

The Rapid Fielding Initiative (RFI) gets equipment to Soldiers where and when they need it by pushing the Army acquisition process much closer to a private-sector business model, reducing or eliminating red tape and delays associated with typical military procurement and fielding procedures. RFI provides immediate critical capabilities to deploying Soldiers. It dramatically speeds procurement and delivery of innovative and essential items that used to take years to acquire using traditional Army development and procurement methods. The current RFI equipment list includes 58 items.

SOLDIER ENHANCEMENT PROGRAM (SEP)

The Soldier Enhancement Program (SEP) was a forerunner of RFI. It is managed for the Army by PEO Soldier and Training and Doctrine Command (TRADOC) System Manager (TSM) Soldier. SEP commercial off-the-shelf items enhance Soldiers' overall effectiveness and performance, including their ability to protect themselves and to detect, identify, locate, and engage the enemy and prevail at greater ranges and with greater accuracy under all conditions.

SEP also provides items fundamental to sustained operations such as water, shelters, and ancillary support equipment. SEP solicits suggestions once a year from individual Soldiers, field commanders, industry leaders, and combat and materiel developers worldwide. PEO Soldier, in coordination with TSM Soldier, reviews submissions and decides whether to evaluate an item further, buy or produce it, conduct field testing, or standardize and issue it to Soldiers in the field. Anyone can submit a proposal for evaluation against SEP criteria. Initiatives must be of no more than three years' duration and must involve commercially available, off-the-shelf technology.

CONCLUSION

PEO Soldier plays an integral role in keeping America safe by supporting the enduring commitment and heroic efforts of our Soldiers, the heart of our Army. As the demands of warfighting change and new technologies evolve in response, PEO Soldier stands ready to equip Soldiers with the best gear, in the shortest time, wherever our global interests dictate. The technologies that PEO Soldier develops and the gear that PEO Soldier fields are crucial components in meeting the challenges of today and those of the future.



Rapid Fielding Initiative

The Army's **Rapid Fielding Initiative (RFI)** program ensures that our Soldiers receive the finest individual and unit equipment the Army can provide—as rapidly as it can be procured and fielded. RFI enhances the capabilities of our fighting forces—both Active and Reserve Components—in the daily performance of their missions. RFI provides an equitable distribution of capabilities across our force and facilitates Soldier modernization in a systematic and integrated manner commensurate with the principles of the Soldier-as-a-System philosophy.



PEO Soldier began fielding RFI equipment in November 2002 after PEO Soldier representatives met directly with Soldiers in the field to gather feedback about inadequacies in equipment and how to address them, and to identify additional needed equipment. Since that time, more than 600,000 Soldiers have been equipped with state-of-the-art equipment, providing significant enhancements to their lethality, mobility, survivability, and operational quality of life. By the end of FY07, the entire operating Army, plus other potential deployers—a total of nearly 900,000 Soldiers—will be RFI-equipped.

The list of RFI equipment is refined and updated based on continuous Soldier feedback. Currently, the RFI list contains 58 items of the most upto-date equipment for Soldiers and small units.

The RFI program expedites the process of acquiring and fielding state-of-the-art, government and commercial off-the-shelf

individual equipment and weapons technology to support Soldiers engaged in combat operations. Specifically, RFI ensures that our Soldiers have the most current technology to enhance their mission effectiveness.

For selected items, PEO Soldier has been successful in achieving dramatic improvements in production by U.S. industry to meet the critical demands of the Global War on Terrorism. Because of the RFI program, the turnaround time for getting equipment into Soldiers' hands, or from "warehouse to foxhole," has improved significantly. What used to take months or even years now takes as little as days or weeks from date of order to date of delivery to the Soldier.

RFI is at the forefront of Army logistics, sustainment, and transformation. As we progress toward the Future Force, RFI-like programs will be the rule rather than the exception. Throughout this process, PEO Soldier is committed to saving Soldiers' lives, increasing their combat effectiveness, and improving their quality of life.



Advanced Combat Helmet (ACH) and Accessories

Army Combat Boot (Hot Weather)

Army Combat Boot (Temperate Weather)

Ballistic Spectacles

Black Fleece Bib and Jacket

Cold Weather Cap

Combat Belt

Commercial Off-the-Shelf Socks

Flame Resistant Fleece for Aviators

Glove System

Goggles

Hydration System

Improved First Aid Kit

Infrared (IR) Markers

Knee and Elbow Pads

Modular Sleeping System

Moisture Wicking Sports Bra

Moisture Wicking T-Shirt

Silkweight Underwear

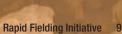
Visual/Language Translation Cards

Wool Socks for Aviators











Backup Iron Sight Door Ram (35-pound)

Fiber Optic Viewer

Flex Cuffs

Grappling Hook

Halligan Tool (Large)

Helmet Repair Kit

Improved Spotting Scope with Tripod

Infrared (IR) Strobe

Modular Entry Tool Kit

Modular Integrated Communications Helmet (MICH) System and Accessories

Modular Lightweight Load-Carrying Equipment (MOLLE) Accessories

Modular M9 Holster

Modular Weapon System Kit

MonoLoc (PVS-14 to Spotting Scope)

Tactical Assault Ladder with Backpack

Three-Point Sling

Viper (Vector 21)/Mark VII

Weapon Light

M122A1 or M192 Lightweight Tripod

M145 Machine Gun Optic

M24 Small Binoculars

M203 Day/Night Sight

M240B Combat Ammo Pack

M240B Rails

M240B/M249 Spare Barrel Bag

M249 Ammo Soft Pack

M249 Collapsible Buttstock

M249 Rails

M249 Short Barrel

M4/M16 Improved Cleaning Kit

M4 Forward Grip Bipod

M4 Improved Buttstock

M68 Close Combat Optic

TA31F-4X Advanced Combat **Optical Gun Sight (ACOG)**

















PROJECT MANAGER Soldier Warrior

Project Manager Soldier Warrior (PM SWAR) supports the Soldier-as-a-System concept through the acquisition of all warrior systems. Air Warrior, Land Warrior, and Mounted Warrior programs provide significant improvements in:

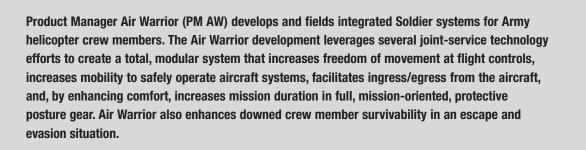
- Tactical Awareness
- Lethality
- Survivability
- Mobility
- Sustainment

Air Warrior integrates all aviation life support and mission equipment into a single aircrew ensemble that enhances cockpit synergy and aircraft mission capability.

Land Warrior integrates the Soldier into the digital battlefield and improves individual Soldier and small unit battle command and tactical awareness.

Mounted Warrior combines cordless communications and personal displays with Soldier mission equipment and leverages capabilities developed in other warrior programs.







Air Warrior (AW)



Provide advanced life support, ballistic protection, and chemical-biological protection in rapidly tailorable, mission-configured modules.

Description and Specifications

Air Warrior (AW) is a new-generation aircrew ensemble. The AW concept has been developed with interoperability in mind and has leveraged several joint-service technology efforts. Previously, the separate development and application of aviation life-support equipment and mission equipment resulted in a layered, non-integrated assemblage of protective/survival gear.

AW consists of components integrated to maximize safe aircraft operation and human performance without encumbering the aircrew. These components include an improved, flame-retardant aviation battle dress uniform; a primary survival gear carrier that includes various first aid, survival, signaling, and communications equipment; flexible body armor with a ballistic upgrade plate; and the Microclimate Cooling System, which includes a Microclimate Cooling Unit, an aircraft mounted autonomous vapor compressor system, and a cooling garment worn under chemical protective and duty uniforms that increases mission duration by 350 percent.

Improvements to the AW system will be provided via an incremental or "block" approach (a time-phased, evolutionary acquisition program) to solve equipment shortcomings. AW is leveraged with the Mounted Warrior and Land Warrior programs. The AW system is the key element in closing the performance gap that exists today between the aircrew and the aircraft.

AW is answering the aviation warfighter challenges of today and tomorrow by developing affordable, responsive, deployable, versatile, survivable, and sustainable aircrew equipment.

Aircraft Modular Survival System (AMSS)



Enable aircrew members to survive for 72 hours post-crash through supplemental survival equipment.

Description and Specifications

The Aircraft Modular Survival System (AMSS) is a lightweight, portable, self-contained survival kit designed to enable aircrew members to survive in severe environments. The system supplements the personal equipment worn and carried by the crew members. AMSS is configured to provide minimum survival equipment for each aircrew member to enable survival for 72 hours, with degraded survival capability for 15 days. Components can be tailored to meet environmental conditions.

Aircraft Wireless Intercom System (AWIS)



Provide secure wireless communication among crew members during flight operations and hot refueling, loading, off-loading, and re-arming of the Army's CH/MH-47 and HH/MH/UH-60 aircraft, and the Navy's CH-46, SH-60, and CH/HH-53 aircraft.

Description and Specifications

The Aircraft Wireless Intercom System (AWIS) is a wireless communication system that consists of one aircraft interface unit, up to six mobile equipment units, and one support station including battery charger. AWIS provides:

- Full duplex, voice-activated, hands-free mode and a push-to-talk mode
- Forty aircraft with independent networks of up to six crew members in each network
- Simultaneous omnidirectional communications among all users within the aircraft network from 200 feet from the center of the aircraft

Aircrew Integrated Helmet System (AIHS), HGU-56/P Helmet



Enhance aircrew survivability, comfort, and mission effectiveness with a lightweight helmet that provides improved impact protection, retention, and sound attenuation and is compatible with all ancillary aviation life support equipment.

Description and Specifications

The Aircrew Integrated Helmet System (AIHS), HGU-56/P Helmet is constructed from an advanced composite of graphite and Spectra and is available in six sizes to fit male and female crew members.

The AIHS HGU-56/P is 15-20 percent lighter than the previous SPH-4 flight helmet it replaces, as reflected in the following specifications:

Weight: 3 pounds vs. 3.5 pounds

Resulting Impact: 150 G vs. 400 G

Chinstrap Retention: 440 pounds vs. 300 pounds

Acoustic: 82 decibels(A) vs. 85 decibels(A)

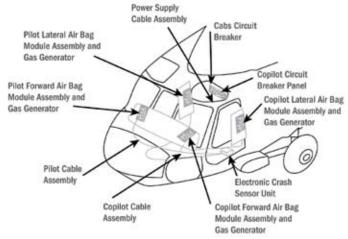
AIR WARRIOR

Cockpit Air Bags System (CABS)









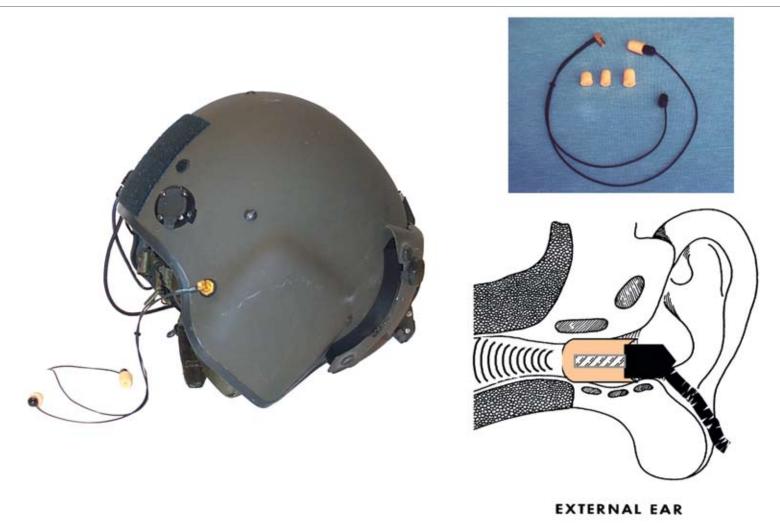
Save lives and prevent or reduce injuries by protecting the aircrew from multiple cockpit strike hazards with a crashactivated, inflatable protection system.

Description and Specifications

The Cockpit Air Bags System (CABS) reduces flail and protects the aviator from multiple strike hazards present within the cockpit, including the cyclic and collective sticks (flight controls), armor panels, instrument panels, glare shields, doors, and gun sights using the air bag. CABS is a crash-activated, inflatable protection system designed to supplement the current restraint systems on helicopters. Although the system concept is similar to automotive air bags, CABS has been designed specifically for rotary wing applications.

The crash sensor detects accelerations in three axes for a greater refinement of crash data input over its automotive counterparts. The gas generator/air bag assembly is designed to operate within the confines of a helicopter cockpit, ensuring extended occupant protection for secondary impacts, while allowing unobstructed egress from the aircraft after deployment. Qualification testing addressed safety and airworthiness requirements, as well as suitability for use in Army weapon systems. When a crash occurs, the electronic crash sensor unit triggers inflation of the air bags, thus providing supplemental restraint for the Army aviator that prevents or mitigates injuries and risk of death.

Communication Ear Plugs (CEP)



Provide improved sound attenuation and improved speech intelligibility for Army aircrews.

Description and Specifications

Communication Ear Plugs (CEP) were initially added to fielded HGU-56/P (Aircrew Integrated Helmet System [AIHS]) helmets through a Modification Work Order (MWO) and now are integrated into new helmets during production. CEP is a pair of small sound transducers paired with hollow foam ear tips. The foam ear tips increase the sound attenuation already provided by the HGU-56/P's ear cups, and the sound transducers provide a clear signal through the hollow foam ear tips. As a result, the Soldier hears clear communications not degraded by ambient noise.

Electronic Data Manager (EDM)



Eliminate or reduce the use of paper in the cockpit and enable aircrew members to quickly plan missions and react to mission changes in flight.

Description and Specifications

The **Electronic Data Manager (EDM)** is a light and portable touch screen computer in the form of a kneeboard that provides the aviator with a GPS moving map capability, sunlight readability, and the capability to use Windows-based software to replace the current kneeboard. The EDM:

- Displays moving maps (aircraft position and waypoints)
- Displays checklists, manuals, and approach plates in PDF format
- Imports mission planning data
- Provides capability for weight and balance calculations
- Provides capability for aircraft performance planning calculations
- Provides capability for electronic notes
- When coupled to Blue Force Tracking Aviation, provides two-way situational awareness and over-thehorizon text messaging

Helicopter Oxygen System (HOS)



Provide approximately one and a half hours of oxygen service for six personnel for highaltitude and certain search-and-rescue operations with utility and cargo helicopters.

Description and Specifications

The **Helicopter Oxygen System (HOS)** is a portable, multiuser oxygen system for high-altitude operations, as well as search-and-rescue operations for selected units with utility and cargo helicopters. HOS is used in support of Operation Enduring Freedom. HOS is integrated with the standard MBU-12/P Oxygen Mask mounted to aviation helmets. The system is used by all services and weighs approximately 125 pounds. No aircraft modification is required. HOS works up to 25,000 feet above mean sea level.

Joint Advanced Laser Eye Protection Visor (JALEPV)



Protect the eyes of aircrew members from low-energy laser hazards and threats.

Description and Specifications

The **Joint Advanced Laser Eye Protection Visor** (**JALEPV**) program is a joint Army-Navy development program led by the Navy to produce laser eye protection in a visor format. This polycarbonate ballistic visor uses holographic, dielectric reflective, and dye technologies to provide aircrew protection from multiple threat wavelengths. This visor is being fabricated for the Army in the HGU-56/P configuration. It will be suitable for day or unaided night flight. Current protection includes the 2- and 3-wavelength HGU-56/P visors and the 4-wavelength Clear Laser Eye Protection for Infrared (CLEPIR) spectacles.

Maxillofacial Shield (MFS)



Provide maxillofacial ballistic protection for Army aircrew wearing the HGU-56/P helmet, compatible with visors, Aviator Night Vision Imaging System (ANVIS), Communication Ear Plugs (CEP), spectacles, microphones, and lip lights.

Description and Specifications

The **Maxillofacial Shield (MFS)** provides maxillofacial ballistic protection from spall and structure impacts. It also provides improved field of view and antifogging capability over previous MFS design.

Microclimate Cooling System (MCS)



Protect the individual aircrew member from heatstroke and heat stress with personal climate control in chemical or biological warfare or hot weather environments.

Description and Specifications

The **Microclimate Cooling System (MCS)** reduces heat stress to Army helicopter crew members, especially while wearing chemical protective equipment in hot weather. The MCS provides a combat advantage to Army aviation by providing an increase of more than 350 percent (from 1.6 hours to 5.7 hours) in heat stress mission endurance times while wearing chemical protective equipment.

The MCS includes a **Microclimate Cooling Garment** (MCG) (vest), worn as an undergarment, and a small **Microclimate Cooling Unit (MCU)**, an autonomous vapor compressor system that chills water and pumps it through small tubes embedded in the vest. The vest is worn beneath chemical protective clothing or other crew member clothing. The system enables crew members to function in chemical, biological, or hot weather environments without suffering heat stress.

Survival Equipment Subsystem (SES)



Enhance the aircrew ensemble by providing advanced life support, ballistic protection, and chemical-biological protection in rapidly tailorable, mission-configured modules.

Description and Specifications

The Survival Equipment Subsystem (SES) consists of components integrated to maximize safe aircraft operation and human performance without encumbering the aircrew. These components include a primary survival gear carrier (PSGC) that includes first aid, survival, signaling, and communications equipment; aircrew survival egress knife (ASEK); a universal holster with ambidextrous Modular Lightweight Load-Carrying Equipment (MOLLE); thigh and shoulder configurations; and flexible body armor with a ballistic upgrade plate. For over-water missions, the ensemble includes a flotation collar (LPU-39/P) and an overwater gear carrier (OWGC) with a single-place life raft and underwater breathing device (SEA MK2).



Product Manager Land Warrior (LW) is developing the integrated Soldier System for Ground Soldiers. The system provides significant improvements in Soldier tactical awareness, lethality, survivability, mobility, and sustainment. Land Warrior's improved battle command and tactical awareness will improve individual and small unit combat effectiveness and reduce fratricide incidents among Soldiers.



Commander's Digital Assistant (CDA)



Enhance situational awareness, support communications, provide Blue Force Tracking, and provide leaders with a capability for mission planning and support.

Description and Specifications

The current **Commander's Digital Assistant (CDA)** Version 5 is an integrated, ruggedized computer with satellite communications; military GPS (GB-GRAM); interface to terrestrial radios; 40GB hard disk; 6.5-inch sunlight readable LCD screen; and Force XXI Battle Command, Brigade-and-Below (FBCB2) battle command software. The CDA Version 6 will consist of two primary modules: a ruggedized computer and a communications module (satellite communications, military GPS [GB-GRAM], antenna, and interfaces).

GloTape and Soldier Combat Helmet Identification Marking System (SCHIMS)



Reduce fratricide risks by the use of friendly-forces marking equipment.

Description and Specifications

The Combined Forces Land Component Commandapproved Soldier marking configuration is a one-inch **GloTape** square on each shoulder and three one-inch **GloTape Soldier Combat Helmet Identification Marking System (SCHIMS)** squares on the helmet. GloTape and SCHIMS are visible to helmet and weapon-mounted image intensification devices.

LAND WARRIOR

Land Warrior (LW)



Provide unprecedented Soldier tactical awareness and significant improvements in lethality, survivability, mobility, and sustainment.

Description and Specifications

Land Warrior (LW) is a first-generation, integrated modular fighting system for dismounted Soldiers. LW combines state-of-the-art technologies to create a lethal, survivable Soldier System linked into the digital battlefield. LW combines computers, lasers, geolocation, and radios with Soldiers' mission equipment to substantially improve the individual Soldier's situational awareness, mobility, sustainability, survivability, and lethality. The systems approach optimizes and integrates multiple capabilities with minimal impact on the Soldier's combat load and logistical footprint. LW is interoperable with the Army Battle Command System.

Mounted Warrior (MW)



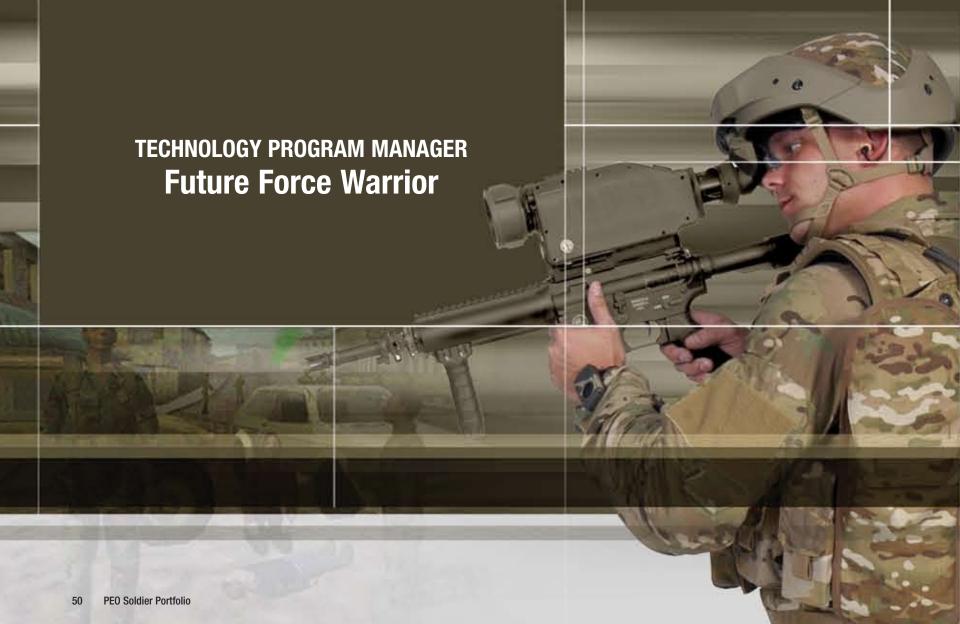
Improve the survivability, situational awareness, lethality, mobility, and sustainability of combat vehicle crewmen.

Description and Specifications

The **Mounted Warrior (MW)** Soldier system leverages capabilities developed in other warrior programs such as Land Warrior and Air Warrior. An integrated system of systems, it combines cordless communications and personal displays with Soldier mission equipment. MW will outfit every crew member, including vehicle commanders, drivers, and gunners, who operate any ground platform. Systems and components include the following:

- Integrated headgear with helmet mounted display to provide remote viewing of platform-based displays and optical sensors such as thermal sights
- Integrated individual soldier computer/radio communications
- Enhancements to protective clothing and individual equipment
- Tactical voice activation system

MW enables crew members to communicate, both dismounted and mounted, with other crew members or Land Warrior-equipped soldiers. The system interfaces with other Army communications and command and control systems. MW includes lightweight, modular, mission-tailorable, integrated equipment and communications, command and control, and computers (C4) devices, worn, carried, or used by crewmen when conducting tactical operations with their assigned combat vehicles.



Technology Program Manager Future Force Warrior (FFW) is developing advanced technologies and capabilities for Soldier systems. Successful, mature technologies will transition for insertion into PEO Soldier programs.

In order to comply with FY05 Congressional language mandating consolidation of the Future Force Warrior Advanced Technology Demonstration (FFW ATD) with Land Warrior, Project Manager Soldier Warrior and Technical Program Office FFW personnel have consolidated efforts to jointly develop the Ground Soldier System (GSS). GSS requirements are described in one of four Capability Development Documents (CDD) that comprise the Soldier-as-a-System concept. At the end of 4Q FY07, FFW ATD will transition technologies to system development and demonstration (SDD) of the GSS, and be fielded to the Future Force in FY10. GSS integrates Soldier system components into a lightweight, overwhelmingly lethal, fully integrated individual combat system. It includes head-to-toe individual protection, networked communications for increased situational awareness and lethality, extended duration Soldier-worn power sources, physiological monitoring, embedded training capability, and enhanced individual and team performance.







Future Force Warrior Advanced Technology Demonstration (FFW ATD)/Ground Soldier System (GSS)



PM Soldier Warrior

Mission

Integrate and demonstrate system of systems technologies for the Core Soldier and Ground Soldier that substantially increase combat effectiveness of Soldiers in small combat units (SCU) within the Future Combat Systems (FCS)-equipped Brigade Combat Team (BCT) for transition to the Ground Soldier System (GSS).

Description and Specifications

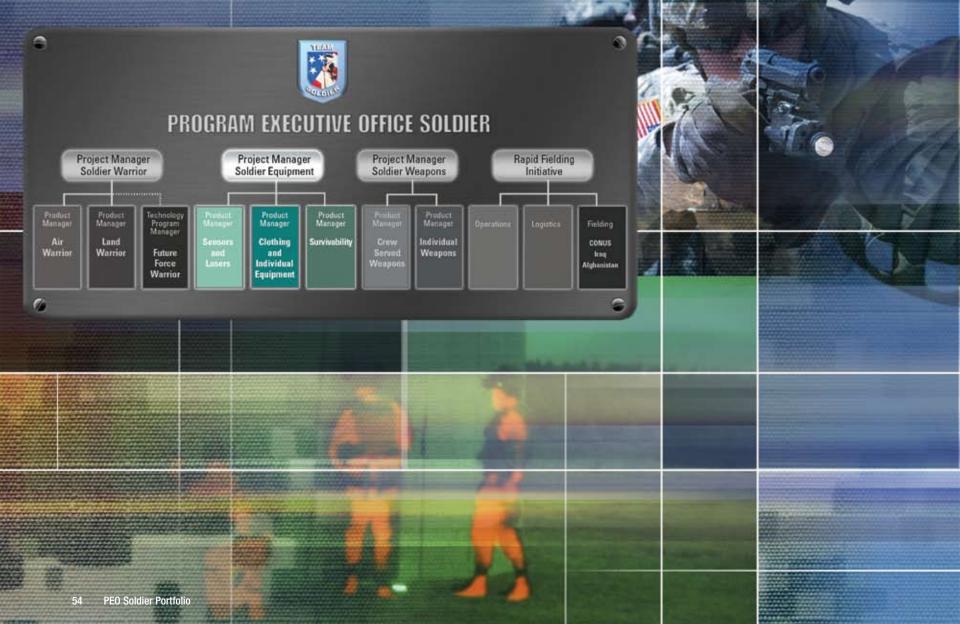
The FFW Advanced Technology Demonstration **Ground Soldier System (GSS)** is the next generation of the Land Warrior integrated modular fighting system. It will include a lighter weight, overwhelmingly lethal. fully integrated modular individual combat system. including enhanced head-to-toe individual protection. networked communications. Soldier-worn power sources, and enhanced human performance. It will transition mature technologies for insertion into PEO Soldier programs before the end of the Advanced Technology Demonstration. It also will analyze Soldieras-a-System variants to provide pre-planned interfaces for extensibility to Air and Mounted Soldier systems. GSS will be completely integrated within the FCS BCTs. Future Force Warrior (FFW) is the early design phase of GSS. GSS will include the following capabilities that are new or enhanced beyond Land Warrior capabilities:

- SCU (platoon) focus with applicable distribution of capabilities
- Networked communications based on Soldier Radio Waveform
- Interoperability with FCS assets (e.g., Tactical Unattended Ground Sensors [T-UGS], Unmanned Aerial Vehicles [UAV]) and current forces
- Headgear sensor fusion of Visible/Near Infrared Spectrometer (VisNIR) and Long-Wave Infared
- Image capture and transfer—short burst video
- Precision positioning Micro Electro-mechanical Inertial Measurement Unit (MEMS IMU)—enhances accuracy and provides position and location in GPS-denied areas
- Integration of new technologies with existing Land Warrior components, with a strategy towards smaller and fewer modules, including integration with the combat ensemble
- System voice control, including wireless Weapon User Interface
- SCU cooperative engagement using FFW modified XM104

fire control system

- Networked fires interoperability with current force and other external assets using Portable Forward Observer Device or Commanders' Decision Aid System
- Embedded training (Tactical Engagement System, memory joggers, embedded skill exercises, FFW Tactics, Techniques, and Procedures)
- · Mission extension using fuel cells and hybrid power sources
- Physiological monitoring and reporting, including initial augmented cognition

GSS will employ a system-of-systems approach, optimizing and integrating capabilities, while reducing the Soldier's combat load and logistical footprint. Soldier system spiral development that began with Land Warrior will continue with GSS, integrating those successful Soldier system technologies developed in the FFW ATD. GSS will eventually provide warrior system capabilities for all dismounted, maneuver support, and maneuver sustainment Future Force Soldiers.

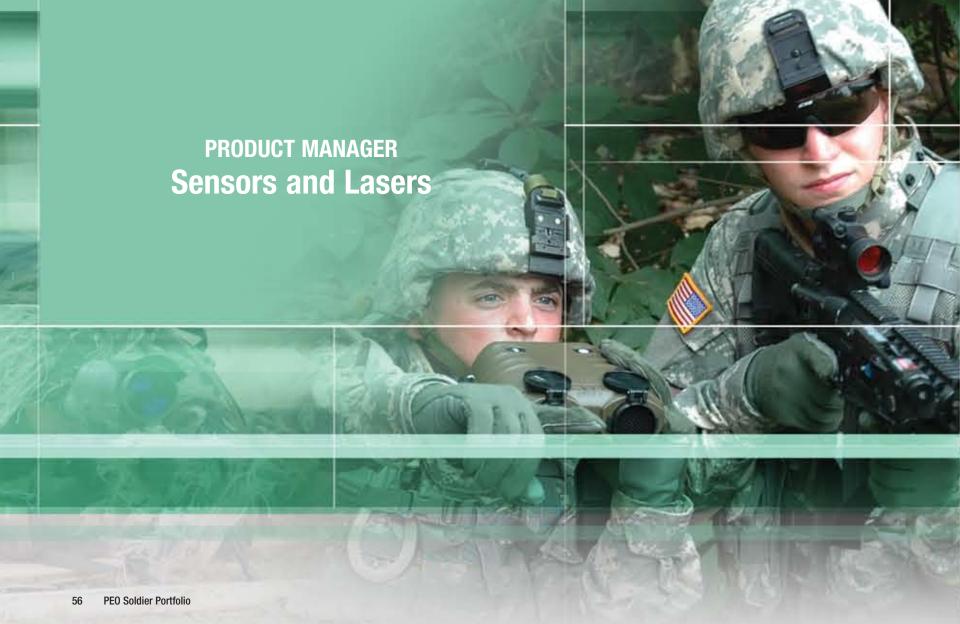




PROJECT MANAGER Soldier Equipment

PM Soldier Equipment (PM SEQ) develops, fields, and sustains the world's best Soldier equipment to advance Soldiers' warfighting capabilities. PM Soldier Equipment procures, adapts, or develops state-of-the-art sensors, lasers, clothing, and other individual equipment, including:

- Helmet-mounted vision enhancement for improved situational awareness in all visibility conditions
- Weapon sights for enhanced target acquisition
- Weapon-mounted and Soldier-carried sensors and lasers for accurate location of targets by pointing, illuminating, locating, and/or designating
- Ballistic and fragmentation protection
- Technologically advanced tactical and environmental protective clothing
- Individual chemical protective gear and
- Personnel airdrop equipment.



Product Manager Sensors and Lasers (PM SSL) develops, produces, and fields advanced sensor and laser devices that provide Soldiers with improved lethality, mobility, and survivability in all weather and visibility conditions. Soldier-borne sensors and lasers enhance the Soldier's ability to see in all battlefield and lighting conditions, to acquire objects of military significance before the Soldier is detected, and to target threat objects accurately for engagement by Soldiers or guided munitions. In short, PM SSL provides Soldiers the ability to see always, acquire first, and target once.





Aviator's Night Vision Imaging System (ANVIS), AN/AVS-6



Enable aviators to operate more effectively and safely day or night and under degraded battlefield conditions.

Description and Specifications

The Aviator's Night Vision Imaging System (ANVIS), AN/AVS-6, is a helmet-mounted, direct-view, third-generation, image-intensification pilotage device that enables flight operations under very low ambient-light conditions. Power is supplied by a helmet-mounted dual battery pack or from aircraft-supplied power.

The AN/AVS-6 or ANVIS-6 used by the Army has lenses that incorporate class-A minus-blue filtering, which significantly reduces the radiance of the low night sky. The ANVIS-6 has been issued in several versions since its original fielding in the mid-1980s. The first was the AN/AVS-6(V)1, with early third-generation tubes effective to approximately quarter-moon conditions, 15mm eye relief, and single eyespan adjustment knob. The AN/AVS-6(V)2 was identical to the (V)1 except that it had an offset mounting arrangement specially designed for the Cobra helicopter. The AN/AVS-6(V)1A had improved tubes capable of operating down to nearly starlight conditions, 25mm eve relief, and dual eyespan adjustment knobs.

The AN/AVS-6(V)3 incorporates all the improvements of the (V)1A, plus enhanced third-generation technology, (a combination of new, gated power supply technology and thin-film tube design), a new fine-focus objective lens, and a new low-profile battery pack. The low-light sensitivity of the (V)3 exceeds that of the (V)1A by about 10 percent and that of the earliest (V)1 by about 35 percent to 40 percent. Additionally, the gated power supply enables the (V)3 to operate in significantly higher light level conditions than any of the previous designs. All ANVIS are capable of operating for 24 hours or more on one pair of AA batteries.

SENSORS AND LASERS

Enhanced Night Vision Goggle (ENVG)



Provide the individual Soldier with the ability to enhance mobility and situational awareness day or night in all weather and battlefield obscurant conditions.

Description and Specifications

The **Enhanced Night Vision Goggle (ENVG)** is a helmet-mounted passive device for the individual Soldier that optically overlays imagery from a long wave infrared sensor onto an image-intensification image to create a fused image. This optical fusion technique will enable the Soldier to carry out missions under a variety of operating conditions.

Plans for the ENVG program include upgrading to a digital package. Digital ENVG will take advantage of image processing techniques to improve image clarity and situational awareness for the Soldier. A digital system lends itself to the battlefield of the future; it can instantaneously import and export digital files (data/map injection). Performance requirements for ENVG include the following:

Weight (maximum): Two pounds, including batteries

Magnification: 1x

Continuous operation: 7.5 hours continuous fusion, plus an additional 7.5 hours of image intensification only with no battery change

Compatibility: Multifunctional Aiming Lights (AN/PEQ-2, AN/PAQ-4, ATPIAL, DBAL-A2)

Integrated Laser/White Light Pointer (ILWLP), AN/PEQ-10



Enable acquisition and engagement of targets in low light or total darkness using either unaided vision or night vision devices, especially in an urban environment.

Description and Specifications

The AN/PEQ-10 Integrated Laser/White Light Pointer (ILWLP) combines the capability to acquire and engage targets during close quarters combat engagements in low-light conditions or in total darkness using a single, lightweight device. The ILWLP, handheld or mounted on the pistol, enables the employment of white light illumination (flashlight), visible, or infrared (IR) aiming lasers, and IR illumination.

The ILWLP weighs less than six ounces and attaches to the M9 pistol with a MIL-STD-1913 rail adapter and uses common, disposable batteries. It has a visible aiming laser range of up to 25 meters in daylight, and a flashlight that provides facial recognition out to 20 meters. The ILWLP has IR aiming and illumination capability beyond the maximum effective range of the weapon.

Laser Borelight System (LBS), AN/PEM-1



Enable precise zeroing of aiming lights, weapon sights, and iron sights on all 5.56mm, 7.62mm, .50 caliber weapons and the MK19 Grenade Machine Gun (GMG), to reduce weapons zeroing time and cost.

Description and Specifications

The AN/PEM-1 Laser Borelight System (LBS) is a rugged projector of visible laser light that enables the boresighting of weapons during daylight, low light, and darkness without discharging the weapon. LBS is used to boresight the Thermal Weapon Sight, AN/PAS-13; the Infrared Aiming Light, AN/PAQ-4B/C; the Target Pointer Illuminator Aiming Laser, AN/PEQ-2/2A; the Close Combat Optic, M68: the M145 Machine Gun Optic; the Individual Crew Served Weapon Sight, AN/PVS-4; the Crew Served Weapon Sight, AN/TVS-5; the iron sights/backup iron sights; and other sighting devices to the weapons systems to which they are attached. LBS also is used to boresight the various sighting devices that can be mounted/attached to the 40mm, MK19 Machine Gun.

Major LBS components include the following:

- The laser borelight
- •5.56mm, 7.62mm, and .50 caliber mandrels
- A set of 38 boresighting targets

A mandrel for the MK19 GMG is an additional authorized item and is issued based on one mandrel per three MK19s authorized. A 9mm mandrel is available as an additionally authorized item for boresighting the Integrated Laser/White Light Pointer.

Laser Target Locating Systems (LTLS), Mark VII, Mark VII E (Enhanced), Viper



SENSORS AND LASERS

Mission

Provide fire support teams and forward observers with daylight and limited night capability to observe and accurately locate targets for voice transmission of target data to the fire support command, control, communications, computers, and intelligence system.

Description and Specifications

The Laser Target Locating Systems (LTLS), Mark VII, Mark VII E (Enhanced), and Viper are handheld or tripod-mounted lightweight laser target locators incorporating an eyesafe laser rangefinder and a digital magnetic compass to determine range, azimuth, and vertical angle from the observer to targets of interest. When targeting, data are sent to a Precision Lightweight GPS Receiver (PLGR) or a Defense Advanced GPS Receiver (DAGR) such that the system can compute and display target location.

These laser target locating systems are highly accurate, run on commercial batteries, and provide a 7x magnification and a 120 mil field of view. The Mark VII incorporates an internal image intensifier for night operations while the Viper image intensifier interface is external to the system.

The Mark VIIE adds a forward looking infrared capability for 2x night observation range, embedded GPS for reduced overall carrying weight, and improved digital connectivity to fire support networks.

Handheld weight: Mark VII - 4.2 pounds; Viper - 3.8 pounds

Total system weight: Mark VII - 6 pounds; Viper (daylight) - 5.9 pounds; Viper (night) - 9.2 pounds; Mark VII E - 5.5 pounds

Lightweight Laser Designator Rangefinder (LLDR), AN/PED-1



Provide U.S. Army fire support teams and forward observers with a man-portable capability to observe and accurately locate targets, digitally transmit target location data to the tactical network, and laser-designate high-priority targets for destruction by precision munitions.

Description and Specifications

The Lightweight Laser Designator Rangefinder (LLDR) AN/PED-1 is a man-portable, modular target location and laser designation system. The two primary components are the Target Locator Module (TLM) and the Laser Designator Module (LDM). The TLM can be used as a stand-alone device or in conjunction with the LDM. Total system weight to conduct a 24-hour mission is 35 pounds.

The TLM incorporates a thermal imager, day camera, electronic display, eye-safe laser rangefinder, digital magnetic compass, Global Positioning System (GPS) electronics, and digital export capability. The TLM has an integral capability for boresighting with the LDM, enabling the operator to see the laser spot and align the system. The LDM emits coded laser pulses compatible with DoD and NATO laser-guided munitions. LLDR is highly accurate and operable during the day, at night, and in battlefield obscured conditions.

SENSORS AND LASERS

Monocular Night Vision Device (MNVD), AN/PVS-14



Provide Soldiers with improved night vision for increased situational awareness.

Description and Specifications

The Monocular Night Vision Device (MNVD), AN/PVS-14 is a lightweight, multipurpose, monocular night vision device. Also available is a weapon mount adapter to allow the system to be mounted on the M16/M4 Picatinny rail. A long list of optional accessories allows configuration to meet all requirements.

The AN/PVS-14 is the standard issue device supplied to the U.S. military and its allies. It features simple user controls and fully automated image tube protection. This system provides the user with complete freedom of movement while maintaining equilibrium in a hands-free application. The AN/PVS-14 also incorporates an infrared (IR) illuminator with a momentary and continuous-on switching function. IR operation and low battery indicators are displayed within the user's field of view. The AN/PVS-14 comes complete with a lightweight, fully adjustable military head strap that allows for comfortable long-term use. A wide range of optional accessories includes high magnification lenses and helmet mounting bracket.

Multifunctional Aiming Lights (MFAL); PEQ-2A, ATPIAL, DBAL-A2



Provide the Soldier with highly accurate aiming laser capabilities for use in darkness at maximum firing distances and in conjunction with appropriate image-intensification devices.

Description and Specifications

Multifunctional Aiming Lights (MFAL) such as the AN/PEQ-2A, ATPIAL, and DBAL-A2 are used in conjunction with night vision goggles to engage targets at night. When zeroed to the weapon, these devices provide an invisible continuous infrared beam along the weapon's line of fire. MFAL devices contain class IIIB lasers that emit a highly collimated beam of invisible infrared light for precise aiming of a Soldier's weapon and adjustable focus infrared illumination for improved situational awareness. MFAL devices are equipped with safety blocks for training that limit the operator from unintentionally selecting the high power, non-eye safe operating modes. Both the aiming and illuminator beams can be zeroed to the weapon and to each other, and can be operated individually or in combination.

An MFAL device includes a carrying case, operator's and unit maintenance manual, a Rail Grabber Bracket Assembly (IAW MIL-STD-1913), batteries, a 12-inch remote cable switch, and a quick reference card.

Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Rangefinder (MLRF)



SENSORS AND LASERS

Mission

Enable dismounted Soldier leaders to accurately determine far target and terrain locations through the use of laser range-finding and digital direction-finding and to control night firing with a laser pointer and illuminator.

Description and Specifications

The Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Rangefinder (MLRF) is a single, compact, weapon-mountable, self-contained laser rangefinder with integral multifunction lasers capable of being used with the Land Warrior suite or in a stand-alone mode. It weighs 1.2 pounds, runs on commercial batteries, and contains a laser rangefinder, digital magnetic compass, visible aiming laser, infrared aiming laser, and infrared illuminator. The STORM also contains a Multiple Integrated Laser Engagement System (MILES) training laser that works as the interrogator portion of the MILES Tactical Engagement System. The laser rangefinder and aiming lasers can be aligned to the bore of the individual weapon. The infrared aiming lasers are compatible with Army issue head and helmet mounted night vision goggles. Combined with a Precision Lightweight GPS Receiver (PLGR) or a Defense Advanced GPS Receiver (DAGR) the system can compute and display highly accurate target locations.

Sniper Night Sight (SNS), AN/PVS-10



Enable accurate acquisition and engagement of targets to the maximum effective range of the M24 sniper weapon.

Description and Specifications

The AN/PVS-10 Sniper Night Sight (SNS) is a lightweight, weapon-mounted, self-contained, imageintensified, passive device designed primarily for use by the sniper for day or night operations. A lever enables the user to change between day and night modes of operation. SNS employs a variable gain image tube that can be adjusted depending on ambient light levels. SNS includes a reticle that can be used either as a blackline reticle for daytime use or illuminated for night operation when required. An eyepiece diopter adjustment is provided so SNS can be used without corrective glasses. A rail mounting interface is integrated into the base of the sight to permit the sight to be quickly mounted to or dismounted from the weapon.

Thermal Weapon Sight (TWS), AN/PAS-13



Enable the Soldier to detect and engage targets, day or night, in all weather and obscurant conditions.

Description and Specifications

The Thermal Weapon Sight (TWS), AN/PAS-13 family enables Soldiers with individual and crew served weapons to see deep into the battlefield, increase surveillance and target acquisition range, and penetrate obscurants, day or night. Thermal Weapon Sights are designed to operate to the maximum effective range of the weapon they support.

The TWS family represents a substantial improvement over the image-intensifier night sights currently in use for small arms. TWS is a second-generation forward looking infrared (FLIR) that is digital battlefieldcompatible and provides a standard video output for training, image transfer, or remote viewing.

The Heavy Weapon Thermal Sight (HWTS) is the night sight with a few modifications (spacer, eye cup, and unique reticle) for the M107.

TWS Family	Weight (TWS/TWSII)	Field of View	Weapons Supported
Light Weapon Thermal Sight (LWTS)	3.0/1.8 pounds	≥15 degrees	M16, M4, M136
Medium Weapon Thermal Sight (MWTS)	5.0/2.8 pounds	6 and 18 degrees	M249, M240B
Heavy Weapon Thermal Sight (HWTS)	5.3/3.9 pounds	3 and 9 degrees	M2, M107, MK19, M24, M4/M16 Squad Leader



Product Manager Clothing and Individual Equipment (PM CIE) supports Soldiers in operational environments and improves their lethality, survivability, situational awareness, health, safety, mobility, and sustainability by providing state-of-the-art ballistic protection and safe, durable, and operationally effective individual and unit equipment. CIE enhances survivability through technologically advanced tactical and environmental protective clothing, individual chemical protective gear, and personnel airdrop equipment.



Advanced Bomb Suit (ABS)



Protect explosive ordnance disposal personnel against the effects of exploding and unexploded ordnance and improvised explosive devices.

Description and Specifications

The **Advanced Bomb Suit (ABS)** is a full-body protective ensemble that will protect the Explosive Ordnance Disposal Soldier from fragmentation, blast overpressure (BOP), impact, heat, and flame. This program will leverage new material technology and design to improve protection, comfort, and ergonomics.

To minimize weight and maximize flexibility, fragmentation protection will be provided at various levels, specific to body regions, based on wounding potential. BOP protection will be provided to the front of the thorax. Impact protection is provided to the head and spine. Heat and flame protection will be provided through the use of flame and heat-resistant materials. The system is equipped with provisions that allow future communications improvements.

Advanced Tactical Parachute System (ATPS)



Provide the airborne Soldier with a modernized tactical parachute system that includes completely redesigned main and reserve parachutes and an integrated harness system.

Description and Specifications

The Advanced Tactical Parachute System (ATPS) represents the next-generation personnel parachute system and provides the airborne Soldier with the first wholesale modernization of the tactical parachute system since the early 1950s. The ATPS consists of a manueverable canopy variant (MC-6) used for precision airdrop and a nonmaneuverable canopy (T-11) variant used for mass, tactical, and static-line airdrop capability. Both variants use a common reserve and harness.

Unlike the current reserve parachute system, the ATPS reserve features a center-pull deployment system. The reserve canopy is a derivative of the proven aeroconical design and includes apex scoop pockets at the top of the reserve canopy and skirt assist lines at the system's hem to promote fast opening of the reserve system during low-speed malfunctions. The ATPS harness, due to higher placement of the D-rings for reserve attachment, is designed to displace the reserve canopy opening shock away from the jumper's lumbar region and spread this force equally along the long axis of a jumper's body.

Aircrew Clothing



Enhance aircrew comfort and provide flash fire protection during flight, pre-flight, post-flight, refueling, and other aviation operations in a two-piece flight suit and a set of components or layers suitable for cold weather wear.

Description and Specifications

The Improved Aircrew Battle Dress Uniform (IABDU) is a two-piece camouflage flight uniform that is functional during normal operations and protects against flash fires. The design is similar to the Battle Dress Uniform but includes an additional left sleeve pocket, lower-leg pockets, and slide fastener or hook-and-pile closures to meet aviator-specific needs. Color-compatible with ground Soldier uniforms, it provides the flexibility needed for field operations when arming and refueling helicopters and during escape and evasion situations.

The **IABDU** was modified to meet the needs of the Air Warrior (AW) program by adding shoulder and elbow patches, a chest area pass-through for the AW microclimate cooling vest air hose, and a knife pocket on the inner left trouser leg. The ABDU/IABDU is made from a plain weave cloth in a blend of 92 percent Nomex, 5 percent Kevlar, and 3 percent static dissipative fiber. It is currently available in both woodland camouflage and a solid color, Tan 380.

Army Combat Uniform (ACU)



Enhance the Soldier's performance with a functional, ergonomic uniform tailorable to the mission.

Description and Specifications

The **Army Combat Uniform (ACU)** is the culmination of many months of research and development by Soldiers for Soldiers, and it is the uniform of choice of the overwhelming majority of the Army's leaders and Soldiers. The ACU is part of the Army's continuing effort to equip the Army's Current Force with Future Force capabilities and to provide Soldiers with the best, state-of-the-art equipment.

The ACU consists of a jacket, trousers, and patrol cap in a new universal camouflage pattern, sand-color moisture wicking T-shirt, and improved hot weather and temperate weather Army combat boots. The ACU was constructed with direct and continuous involvement of Soldiers throughout the design and evaluation process. The result is a combat uniform with improved functionality and greater Soldier acceptance than the current Battle Dress Uniform (BDU).

The ACU enhances Soldier performance, because it is tailorable to the individual mission, provides enhanced functionality and ergonomics over the existing BDU and Desert Camouflage Uniform (DCU), and does away with requirements to procure uniforms focused on specific environments. The ACU is acceptable worldwide. The ACU is also easy to maintain, thereby decreasing the out-of-pocket cost to the Soldier.

Ballistic and Non-Ballistic Protection



Provide face, torso, and leg protection from a wide variety of threats during stability and support operations throughout the world.

Description and Specifications

Civil Disturbance Protective Gear provides face, torso, and leg protection from a wide variety of threats (debris, liquids, hand thrown objects, direct or indirect fire, etc.). Ballistic protection items meet the National Institute of Justice (NIJ) level IIIA requirements for 9mm and .44 magnum bullet resistance. The Ballistic Body Shield is made of Spectra-Shield; Shin Guards are made from Kevlar KM2; and Ballistic Face Shields are made from acrylic and bullet-resistant polycarbonate materials. Non-ballistic items—face and body shields—are made from transparent polycarbonate materials while non-ballistic shin guards are made from hard plastics.

Knee and Elbow Pads (KEP) provide dismounted Soldiers with protection for knees and elbows while engaged in tasks that subject these areas to possible injury or discomfort caused by impact, pressure, or protruding objects and debris (e.g., rocks, gravel or glass).

Blast Protective Footwear System (BPFS)



Provide dismounted Soldiers who encounter increased threats of larger, higher velocity fragmentation anti-personnel mines with improved ballistic protection to the distal region (feet, ankles, lower calves, and upper thighs).

Description and Specifications

The Blast Protective Footwear System (BPFS) is a standoff device that may either supplement or replace the Body Armor Set, Individual Countermine (BASIC) overboots.

BASIC is designed to protect individuals during mine clearing operations. It consists of boots, trousers, and face shield and is used in conjunction with the standard body armor and Kevlar helmet.

BPFS protects the leg (hip, leg, ankle, and foot) against blast mines. It is an armored footwear system for use by Soldiers performing mine clearing tasks and expands the protection provided by the BASIC system overboot that was type classified in 2001. The notional capabilities of the BPFS include the following:

- Provides blast protection superior to the BASIC overboot
- Does not significantly impair Soldier mobility during mine sweeping and probing operations
- Does not interfere with the Soldier's operation of hand-held mine detectors nor reduce the probability of detection

Body Armor, Aircrew Integrated Recovery Survival Armor Vest and Equipment (AIRSAVE)



CLOTHING AND INDIVIDUAL EQUIPMENT

Mission

Provide Army, Navy, and Marine aircrews with aviation life support equipment in a single ensemble.

Description and Specifications

The Aircrew Integrated Recovery Survival Armor Vest and Equipment (AIRSAVE) is a three-component system consisting of a survival vest, soft body armor, and hard body armor plates. The survival vest is made of raschel knit, fire retardant-treated nylon, and Nomex. The standard vest has 11 Nomex pockets. Two versions of a Survival Egress Air (SEA) MK 2.0 (for Helicopter Emergency Egress Device and Helicopter Aircrew Breathing Device) pocket, and a 9mm pistol (M-9) pocket are available as options. All pockets except the inner pockets are adjustable to allow for mission tailoring. The vest incorporates an adjustable nylon webbing cradle design extraction harness system and will accommodate the latest nuclear, biological, and chemical blower motor and mask.

The soft body armor is made of 36 plies of Kevlar in a Nomex casing, providing protection from anti-aircraft high-explosive incendiary ammunition fragments. The hard ceramic body armor plates with Nomex covers offer protection from .30-caliber armor-piercing ammunition. The hard plates are designed for quick removal in the event of a water crash/ditching situation. Aviators wear only the front plate while other aircrew personnel wear both the front and rear plates. The one-size survival vest is fabricated from raschel knit, fire retardant-treated nylon and Nomex plain weave cloth, ceramic, fiberglass plate, Kevlar spall protection, and a plastic slide fastener with double sliders.

The complete AIRSAVE system weighs 29 pounds:

Survival vest: 4 pounds

Soft-body armor: 9 pounds

Hard-body armor plates (two): 16 pounds

Body Armor, Concealable



Provide 9mm handgun ballistic protection over the entire protected area and protection from ice picks and other sharpened metal objects fashioned as weapons.

Description and Specifications

The Concealable Body Armor (CBA) provides concealable, minimum-weight, ballistic protection that is comfortable to wear over extended periods of time. The CBA offers maximum concealable torso coverage for 9mm, full metal jacket 124-grain bullet protection.

The Concealable, Stab-Protection Body Armor (CSPBA) is intended to be worn by Soldiers performing duties in correction, confinement, enemy prisoners of war/civilian internee, and law enforcement operations to protect them from homemade weapons and handguns. CSPBA will provide the individual Soldier with soft armor protection to the torso against a 9mm, full metal jacket 124-grain bullet and meet the California Ice Pick standard to protect against other crude stab/slash weapons.

Boots – Cold (Wet and Dry) Weather



Intermediate Cold Wet Boot with Removable Liner (ICWB w/RL)





Plastic Shell Ski Boot



Extreme Cold Weather Boot



Mountain Ski Boot



Extreme Cold Weather Boot

Provide environmental foot protection suitable for the spectrum of wet and dry cold weather conditions.

Description and Specifications

The white Extreme Cold Weather Boot (ECWB) protects feet in dry-cold conditions when temperatures are between -20 degrees Fahrenheit and -60 degrees Fahrenheit. Boots have six pairs of eyelets and insulation consisting of three layers of needle-punched polyester foam hermetically sealed within an outer and inner layer of rubber. The boot has a pressure release valve to adjust internal air pressure in the boot during high altitude operations.

The Intermediate Cold Wet Boot with Removable Liner (ICWB w/RL) is worn in cold, wet environments where the mean monthly temperature ranges between -10 degrees and 32 degrees Fahrenheit. The ICWB is a 10-inch high boot constructed of waterproof, breathable leather with a waterproof breathable membrane package and thermal insulation. It has a shock attenuating soling system with a rubber Vibram outsole and a molded cushion removable insole. It also incorporates a closed-loop speedlace system.

The **Mountain Ski Boot** is worn during mountain climbing or downhill/cross-country skiing in temperatures down to 10 degrees Fahrenheit. It has a high leather upper in a long vamp design with combination eyelets-and-hooks closure system. The boot is fully lined, except gusset, with tan, glove-type leather. The boot has a removable felt insole for bottom insulation.

The **Plastic Shell Ski Boot** is used as a walking boot, climbing boot, snowshoe boot, and cross-country/downhill ski boot as part of the Snow and Ice Traversing Equipment system. It has a black polyurethane shell composed of separate foot box and flexible cuff units with a separate thermal liner.

Boots – Utility



Provide combat personnel with environmental and camouflage foot protection in a variety of battlespace environments.

Description and Specifications

The **Hot Weather Combat Boot–Type I (HWCB–Type I)** is a black, hot weather combat boot made with a moisture-resistant full grain leather and nylon duck upper with two drainage eyelets on the inner arch to assist in water removal. The sole of this boot consists of a three-layer, shock absorbing soling system with a solid rubber, abrasion resistant Vibram outsole. It has a combination eyelet and speedlace lacing system. A steel plate is incorporated into the insole for spike protection.

The Infantry Combat Boot (ICB)—Type I has been approved as the standard Army boot. It is a black, temperate weather combat boot with a moisture-resistant full-grain leather and nylon duck upper. It has a waterproof breathable membrane and integrated safety features for limited flame-, conductive heat-, and liquid fuel penetration-protection. The sole consists of a three-layer, shock absorbing soling system with a solid rubber, abrasion-resistant Vibram outsole. It has a combination eyelet and speedlace lacing system.

The Army Combat Boot (Temperate Weather) (ACB [TW]) is a tan, temperate weather combat boot with a moisture-resistant, rough-side-out leather and nylon duck upper. This boot contains a waterproof breathable membrane and integrated safety features for limited flame-, conductive heat-, and liquid fuel penetration-protection. The sole consists of a three-layer, shock absorbing soling system with a solid rubber, abrasion-resistant Vibram outsole. It has a combination evelet and speedlace lacing system.

The Army Combat Boot (Hot Weather) (ACB [HW]) is a tan, hot weather combat boot made with moisture-resistant, rough-side-out leather and nylon duck upper with two drainage eyelets on the inner arch to assist in water removal. The sole of this boot consists of a

three-layer, shock absorbing soling system with a solid rubber, abrasion-resistant Vibram outsole. It has a combination eyelet and speedlace lacing system.

The **Improved Boot Sock** is an over-the-calf style with a double welt top and a double covered elastic yarn that is continuous in every course from the welt to the ankle area. The fully reciprocal heel, toe, and foot area is padded with a half-cushion terry for blister protection. The entire ankle, heel, toe, and foot is knit 360 degrees circumferentially with a main body yarn (terry yarn) and a silver-coated nylon yarn knit simultaneously in the same position. The nylon yarn is permanently coated with 99.9 percent pure silver, and is nonallergenic, antimicrobial, and provides protection against bacteria and fungi.

Camouflage Systems



Provide a variety of individual camouflage solutions for the Soldier in the visible and near-infrared regions of the electromagnetic spectrum; protection against thermal imagers, which operate in the mid- and far-infrared regions of the spectrum; and protection against insects.

Description and Specifications

Camouflage Face Paint (CFP) is used on all exposed skin to provide passive camouflage protection in the visible and near-infrared regions of the electromagnetic spectrum but does not provide protection against thermal imagers, which operate in the mid- and far-infrared regions of the spectrum. The current camouflage compact is a cosmetic-like container with an acrylic mirror and compartments containing four colors.

The **Ghillie Suit Accessory Kit (GSAK)** provides surveillance units and snipers with various camouflage materials to construct, repair, and modify Ghillie Suits to meet unique mission and climatic requirements. The lightweight kit consists of 17 items. GSAK contains four colors of jute burlap strips, duck cloth, nylon cord, sewing needles, thread, foam padding, tie straps, face paint, over-white trousers, over-white mittens, over-white parka, netting, camouflage covers, trouser suspenders, and several other accessory items that complement natural colors, patterns, shadows, and textures to fabricate and maintain one Ghillie Suit.

Canteens



Provide Soldiers with a portable means of hydration that interfaces with chemical-biological (CB) masks.

Description and Specifications

The **One-Quart Canteen** with cover is kidneyshaped and consists of a cover, body, strap, and cap that allows drinking from the canteen without removing the chemical-biological (CB) mask.

The **Two-Quart Collapsible Canteen** consists of a bladder, cover, carrying strap, and a cap that allows drinking without removing the CB mask. A pocket for water purification tablets is provided on the cover. The canteen may be carried slung over the shoulder using the carrying strap or attached to the field pack webbing using the belt clips.

The **Cold Weather Canteen System** will provide a means for Soldier hydration during operations in extreme cold environments (i.e., -40 degrees Fahrenheit). The system consists of a single wall, stainless steel, low profile, kidney-shaped canteen with a matching stainless steel cup with handle, and an insulated carrier. The canteen has a one-liter capacity and is constructed with a wide-mouth opening to allow the penetration of a bayonet to break up any ice that forms during use in the extreme cold environment. The M-1 nuclear, biological, and chemical (NBC) cap interfaces with the drinking tube of the chemical protective mask using a cap adapter/mouthpiece of low thermal conductive material. The insulated carrier is designed to attach to the Soldier's equipment belt or his load-carrying equipment.

The Modular Lightweight Load-Carrying Equipment (MOLLE) Hydration System is an ergonomically designed water bladder that can be worn individually or integrated with load-bearing equipment or web harness systems. Research and development is ongoing to interface the MOLLE hydration system with the CB mask. This is being addressed in the NBC Environmental Personal Hydration System (NEPHS) research and

development program. It includes a drink tube with bite valve and positive shut-off and an exterior fill port with a handle for filling on the go. The outside pouch is made of abrasion-resistant 1000D Cordura™ nylon and has a sternum strap for added stability.

Chemical Protective Clothing and Gear



Protect Soldiers from chemical and biological contamination in battle and other operations.

Description and Specifications

The Chemical Protective Undergarment (CPU) is a two-piece "form-fitting" design to be worn under armor or aviation uniforms to provide protection from chemical agents. The CPU is snug-fitting and air permeable. In addition, the CPU is also worn with the Toxic Agent Ensemble by Department of the Army civilians, who are engaged in routine demilitarization of missiles and deploy surveillance of munitions that contain toxic agents. The U.S. Army Firefighter's Integrated Suit-Combat (FIS-C) protects military firefighters in accordance with National Fire Protection Association standards and provides chemical and biological (CB) protection during firefighting. The FIS-C consists of proximity coat and trousers, gloves, helmet, standard firefighting boots. Nomex balaclava. self-contained breathing apparatus with chemical kit, Joint Service Lightweight Integrated Suit Technology (JSLIST) overgarment, CB gloves/liners, and carry bag.

Suit, Contamination Avoidance, Liquid Protective (SCALP) provides supplemental protection when worn over standard chemical protective garments. SCALP consists of a jacket, trousers, and two footwear covers worn over the chemical protective overgarment and overboots. All components provide protection from liquid contamination for up to one hour. The JSLIST is the standard CB garment worn by Soldiers with the Chemical Protective Helmet Cover, Butyl Rubber Gloves, and Green or Black Vinyl Overboots (GVO/BVO).

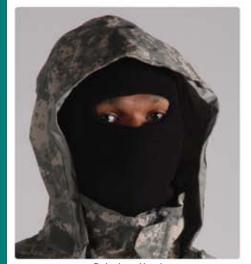
The CB Protective Equipment Bag is designed to consolidate and transport the CB Protective Ensemble. It is made of an abrasion-resistant nylon and incorporates a unique closure system, using hook-and-loop closures, two compression straps, and quick release buckles for protection from the outside environment. Web loops have been stitched to the carrier to accept cargo tie-down straps for attachment to the current and developmental

load carrying equipment. The Chemical Protective Helmet Cover is a one-piece configuration made of butyl rubber-coated nylon cloth and gathered at the opening by elastic webbing enclosed in the hem. It provides any standard helmet with protection from chemical and biological contamination. The Chemical Protective Glove **Set** includes the impermeable butyl rubber gloves with cotton knit liners, which protect the hands in a chemical threat environment. The impermeable butyl gloves are manufactured in right and left hand, five-fingered configurations, and shaped to follow the natural curvature of the hand in a relaxed position, while the inner permeable cotton five-finger gloves are ambidextrous. GVO/BVO are worn over standard combat boots and provide chemical protection when needed and moisture protection during wet weather, GVO/BVO are made of an impermeable molded vinyl plastisol and have a slip-resistant outsole design. Elastic loops are pulled over three metal fasteners to close the gusset expansion after donning. The GVO/BVO provides 24 hours of protection against all known CB agents after a maximum wear of 60 days.

Cold Weather Accessory Garments



Fur Ruffs



Balaclava Hood



Provide Soldiers with full cold weather protection and camouflage for both coldwet and cold-dry environments.

Description and Specifications

Cold Weather Accessory Garments include fur ruff parka hood, masks, neck gaiter, snow camouflage garments, and the cold/wet glove system.

Fur Ruffs attach to parkas to provide full head and face protection from the cold and high winds, forming a protective tunnel in front of the face. Hoods fit over caps and helmets, are lined with fur strips that can be formed into a tunnel held in shape by a soft malleable brass wire in the front hem of the hood and button to the neck and collar of the parka.

The Extreme Cold Weather Mask protects the face against wind, cold, and blowing snow. The mask has an adjustable insulating face piece and removable oro-nasal thermal control barrier and insulating bib-type throat covering. It covers the forehead, cheeks, nose, ears, chin, and mouth; the face piece and throat covering are white.

The **Neck Gaiter** can be worn six ways: as neck warmer, hood, balaclava, hat, ski band, or as a headband. The brown, one-size-fits-all Neck Gaiter is compatible with battle dress uniforms.

The Arctic Camouflage Parka and Trousers (overwhites) provide camouflage in snow terrain. The thigh-length parka has a two-way, full front zipper closure with snap fasteners and a split bottom in back with an elastic draw cord to tie the parka bottom around each leg. They are not substitutes but are worn over other garments in extremely cold environments or for snow camouflage. The single-ply trouser has draw cords at the waist and leg bottoms with slash-through pocket openings on each hip.

Cold Weather Mittens



Provide hand protection for Soldiers in conditions too cold for leather gloves.

Description and Specifications

Cold Weather Trigger Finger Mitten Shells are worn with or without the Cold Weather Trigger Finger Mitten **Inserts** in temperatures too cold for leather gloves. The Trigger Finger Mittens are a slip-on style made of fabric with a leather palm, thumb compartment, and a combined second, third, and fourth finger compartment. They have long gauntlets with elastic around the top. a tape loop at the top for attaching a suspension cord, and an adjustable closure strap on the back across the wrist. The backs of the hand and fingers are insulated. The green Cold Weather Trigger Finger Mitten Inserts are knitted fabric and have the same finger configuration as the Trigger Finger Shell. The hand, finger, and thumb are a plain stitch knit and the cuff is a rib knit.

The Extreme Cold Weather (ECW) Mitten Set is worn over other handwear to provide environmental protection in extreme cold climates. The FCW can be removed for short periods when Soldiers must perform tasks requiring dexterity in extreme cold climates. The mittens can be easily retained via the suspension harness and then replaced to rewarm the hands. The set consists of an outer shell, a removable insulating liner, and a suspension harness. The outer shell is a fabric and leather palm with a layer of pile material on the back of the hand. The mittens have a long gauntlet with adjustable closure straps on the back of the outer shell across the wrist and top of gauntlet. The harness consists of a breast piece and a suspension piece. The outer shell of the mitten set is made of wind-resistant and water repellent cotton, nylon sateen with a deerskin leather palm, and wool pile material on the back of the hand. The removable insulating liner is made of polyester batting with a lightweight rip-stop nylon cover fabric. The suspension harness is made of cotton tape and cotton braid.

The Snow Camouflage White Mitten Shells are worn over ECW mittens and trigger finger mittens for camouflage in snowy terrain. The shell is made of a single layer of fabric and has a long gauntlet with an elastic take-up at the top of the gauntlet and an adjustable closure strap on the back across the wrist. The mitten shells are made of cotton warp/nylon filling oxford cloth that has a water-resistant finish.

ECW Mitten Shell (Arctic Mitts) are a slipon style made of fabric with a deerskin leather palm. The mittens have long gauntlets and an adjustable closure strap on the back across the wrist. The back of the hand and fingers are insulated, and the back of the mitten is wool pile.

Combat Eye Protection





Oakley (Ballistic) Spectacle



Arena Flakjak





ESS Profile NVG Goggles





ESS Land Ops Goggles





ESS Vehicle Ops Goggles



Special Protective Eyewear, Cylindrical System (SPECS)



Sun, Wind, Dust Goggles (SWDG)

Provide laser and ballistic eye protection for Soldiers who do or do not require prescription corrective lenses and general eye protection from sun, wind, and dust.

Description and Specifications

The Ballistic Laser Protection System (BLPS) provides ballistic and laser eye protection and consists of multiple spectacle assemblies available in clear, sunglass, and two- and three-wavelength laser protection. The BLPS laser protection is provided by dve absorber technology. The BLPS accommodates a prescription lens insert via a nosepiece carrier for Soldiers who require corrective lenses. All lenses are ballistic protective.

Five sets of evewear protection have been issued in support of the Rapid Fielding Initiative (RFI) Combat Eve Protection Program (CEPP) to units being forward deployed. They are the Eve Safety Systems (ESS) Land Ops Goggles, ESS Profile NVG, UVEX Spectacle, and Oakley SI-M Frame (Ballistic) Spectacle.

Authorized ballistic commercial evewear are **UVEX XC**. Oakley SI-M Frame, Body Specs Pistol, Revision Military Evewear, Wiley-X SG-1 and PT-1SC. ESS ICE 2 Goggles, ESS Land Ops, ESS Vehicle Ops, ESS Profile NVG, and Arena Flakjak.

Sun, Wind, and Dust Goggles (SWDG) are the standard military goggle for eye protection and have a foam pad that seals the goggle frame to the face. A snap fastener facilitates easier lens replacement. The lenses provide ballistic and two- and three-wavelength protection.

The Special Protective Eyewear, Cylindrical System (SPECS) provides ballistic and laser eve protection for Soldiers who do not require prescription corrective lenses. The SPECS system consists of a lens-carrying brow-bar, interchangeable spatula and cable temples. nosepiece, and four interchangeable lenses. The temples are capable of pantoscopic angle adjustment for maximum fit, comfort, and acceptance, Lenses provide two- and three-wavelength laser protection.

The following requirements are mandatory for

both spectacle and goggle protection:

Spectacle:

- Ballistic protective-5.8 grains at 650 feet/second
- American National Standards Institute (ANSI) Z87.1 Goggle:
- Ballistic protective -. 22 grain at 550-560 feet/second
- ANSI Z87.1

The Military Combat Eye Protection (MCEP) system program will enhance the Soldier's battlefield capabilities when wearing eye protection. MCEP will provide laser protection (maintaining ballistic protection) and ultimately protect against frequency-agile laser weapon systems operating in the optical region of the electromagnetic spectrum. It will provide light transmission that will enable the Soldier to wear the system both in daylight and at night during all missions, including airborne operations. It will also provide one system that prescription and nonprescription wearers can wear (in a goggle and spectacle configuration). The goggles are ventilated and coated to maximize resistance to scratching and fog and provide limited ballistic and UV protection for Soldiers.

Combat Vehicle Crewman (CVC) Clothing



Provide combat vehicle crewmen with extraction capability and improved protection from flame and flash fires in all weather conditions.

Description and Specifications

The Combat Vehicle Crewman (CVC) Coverall is a one-piece design with a front entry, slider-fastener closure with dual sliders, a drop seat, upper back extraction strap, collar with front throat protection, full-length sleeves with a wrist slide fastener closure, and nine pockets. The coverall is made from a plain weave cloth in a blend of 92 percent Nomex, 5 percent Kevlar, and 3 percent static dissipative fiber. It is currently available in solid colors 0G-106, CG-483, and Tan 380. A woodland camouflage print has been developed.

The **Anti-Flash Hood** is shoulder length, conforms to the head, and flares into a yoke at the bottom. The circular face opening is edged with bias binding that covers elastic webbing. The top portion of the hood has two layers of the basic material, while the yoke is a single layer. It is a blend of 80 percent flame resistant Rayon and 20 percent polybenzimidazole high performance fiber in a natural color.

The **CVC Coverall Liner** is worn under the coverall to provide additional thermal insulation and protection from flash fires. They are a set of upper and lower garments that separate at the waist. The upper is a waist-length jacket configuration with sleeves. The lower trousers attach to the upper garment and are compatible with the drop seat of the coverall. The coverall can be worn with both the upper and lower garments of the liner attached, or just the upper section alone. The liners are made from a quilted Aramid batting material.

The **High Temperature Resistant Cold Weather Jacket** protects from cold and flash fires. The jacket is single breasted with a front slide fastener closure and inside protective flap. The back has a yoke and a retrieval strap opening with a hook-and-pile closure.

The left sleeve has a utility and pencil pocket and the sleeves have elbow patches. The cuffs and waistband are rib knit. The jacket is made from an oxford weave cloth in a blend of 92 percent Nomex, 5 percent Kevlar, and 3 percent static dissipative fiber. It is currently available in solid colors OG-106, CG-483, and Tan 380 and is fully lined with a quilted Aramid batting material.

Extended Cold Weather Clothing System (ECWCS)



CLOTHING AND INDIVIDUAL EQUIPMENT

Mission

Protect the Soldier from cold weather conditions with clothing adjustable to the Soldier's personal preference and metabolism and the prevailing weather conditions.

Description and Specifications

The Extended Cold Weather Clothing System (ECWCS) insulated layering system is designed to maintain adequate environmental protection in temperatures ranging between +40 degrees and -60 degrees Fahrenheit. The material in the parka and trousers includes a nylon lining, nylon inner and outer layer, and a knitted, plastic intermediate layer in a four-color camouflage print. The fleece shirt and trousers of the Black Fleece Bib and Jacket serve as an insulating layer. The insulating shirt has a full front opening with two-way zipper, wind-proof flap, pit zippers, and hand warmer pockets. The bib overalls are similar to the current style but are less bulky; liners are 100 percent polyester fleece.

The Lightweight Cold Weather Underwear System (LWCWUS) provides Soldiers lighter weight underwear with wicking capability. The polypropylene underwear layer serves as a moisture-wicking layer worn next to the skin. LWCWUS is a brown, two-piece, 100-percent polyester long underwear set. The shirt has a zippered turtleneck collar, and drawers have an elastic waistband and standard front fly opening. The system provides environmental protection in temperatures from 0 degrees to 50 degrees Fahrenheit when worn with standard clothing items; it also wicks moisture to the outer garment layers.

The **Cold Weather Coat and Trouser Liner** is an insulating layer for cold weather clothing and the ECWCS. Modifications to the standard coat liner allow Soldiers to wear it independently of their respective field clothing, as buttons and buttonholes have been added to the coat front. The liner is made of polyester batting and rip-stop quilted nylon.

The **Wool Winter Sock** is a knitted seamless sock worn with the ski mountain boot. The inside of the wool sock has terry tuft stitches throughout. It is made of merino wool and cotton in a natural color.

The **Fleece Cap** is a synthetic microfleece cap that is a bell-shaped, pull-on style cap. It will become a

part of the FY06 clothing bag and is currently being fielded under the Rapid Fielding Initiative (RFI).

Extended Cold Weather Polypropylene Underwear includes a turtleneck with a center front zipper that extends to the middle of the chest area and allows for ventilation at the neck and chest area. The drawers serve as a base layer to protect the lower extremities. The brown underwear is knitted, brushed multifilament polypropylene.

The **Black Fleece Bib and Jacket** consists of a black fleece shirt with full front opening and a two-way zipper, windproof flap, pit zippers, hand warmer pockets, and black fleece bib overalls that are similar to the current style but less bulky. Together, the Black Fleece Bib and Jacket reduce the bulk of the original liners by 40 percent.

Silkweight Underwear is treated polyester knit to wick moisture away from the body. The undershirt has a crew neck, contoured longer tail in back and long sleeves with a thumb hole to aid in donning and add protection to the hand/wrist area. Flat seam construction reduces chafing.

Helmets



Provide ballistic protection to the head, temple, ear, and neck areas against fragmenting munitions without degradation to the Soldier's field of vision, stability, and hearing.

Description and Specifications

The modular **Army Combat Helmet (ACH)** comes in four shell sizes and two pad sizes. The modular pads of the suspension system offer improved stability and physical comfort. The edge of the ACH shell is finished with a rubber trim. The cotton/polyester chin strap, a four-point design, allows for quick adjustment for head size and includes a neck cushion for improved comfort and stability. The helmet shell is Aramid fabric in foliage green 504. It weighs between 3 and 3.25 pounds, depending upon size, and the helmet cover is available in universal camouflage pattern.

The **Parachutists and Ground Troops Helmet** is a rigid (Aramid fabric with a phenolic/PVB resin), onepiece ballistic protective item. It has a small visor and contains a cradle suspension system. An improved helmet suspension assembly and headband were fielded several years ago. The headband utilizes hook-and-loop tape to adjust for head circumference and to attach the headband to the suspension assembly (metal hardware eliminated). A hook-and-pile pull-tab is used on the drawstring of the suspension assembly to adjust the height of the helmet. The chin strap is a two-point. open chin cup design. A camouflage cover in several patterns is available. The Suspension System (improved version) is a cradle-type webbing configuration that is attached to the helmet with six screws and A-nuts. This feature allows replacement while minimizing the amount of hardware inside the helmet.

Associated components include the camouflage helmet band, comfort pad, insulating cold weather helmet liner cap, and parachutist's helmet pad. Liners and pads provide energy absorption, rear impact protection for parachutists, cushioning, and comfort. Additionally, wearing pads improves the fit and the stability of the helmets.

The Combat Vehicle Crewman Helmet (CVCH) consists of a rigid, compression molded, outer shell constructed of Aramid Kevlar fabric coated with phenolic and polyvinyl butyral resins. The shell has rubber-edging adhesive along its peripheral contour. The liner is constructed with energy absorbing foam sections enclosed in a fire-resistant Nomex mesh fabric. The CVCH is attached to a fabric mesh inner liner by snap fasteners and hook-and-pile tape. Located on the front of the helmet are leather fastener mounts for attaching the shell to the chin strap.

Joint Service Lightweight Integrated Suit Technology (JSLIST)



CLOTHING AND INDIVIDUAL EQUIPMENT

Joint

Mission

Protect personnel from chemical and biological weapons and agents with a protective clothing ensemble that can be tailored to the diverse operational needs of the Soldier, Sailor, Airman, and Marine.

Description and Specifications

The Joint Service Lightweight Integrated Suit Technology (JSLIST) overgarment is the first DoDmanaged chemical-biological (CB) protection program and is led by the U.S. Marine Corps. Soldiers wear the overgarment in all environments when under imminent threat of a chemical attack and after initiation of chemical operations. The JSLIST Block 1 Glove Upgrade initiative satisfies an immediate need for a lightweight, tactile, fire resistant, chemicalprotective glove with greater dexterity and comfort than the current butyl (7 mil. and 14 mil. only, Cloutier dual glove systems only for aviation and CVC personnel) CB protective glove. In an attempt to encourage competition and lower costs, the JSLIST program solicits JSLIST overgarments in alternate materials but with the same design as the original JSLIST. The purpose of the JSLIST Additional Source Qualification (JASQ II) program is to qualify additional manufacturers to provide JSLIST overgarments.

The JSLIST overgarment is lighter and less bulky than previous chemical protective garments, is more durable, and provides more protection against liquid and vapor chemical challenges. Trousers have bellows-type pockets, a high-waist, adjustable suspenders, and an adjustable waistband with a slide fastener front opening with protective flap and a bellows pocket with a flap located on each thigh and two hook-and-pile ankle adjustment tabs on the leg openings. The coat has an integral hood, a slide fastener front concealed by a flap with hook-and-pile closure, enclosed extendable elasticized drawcord hem with jacket retention cord. full-length sleeves with hook-and-pile wrist closure adjustment tabs, and an outside bellows pocket with flap on the left sleeve. The outer shell is woodland or desert camouflage, with a 50/50 nylon/cotton poplin

rip-stop lining with a durable water repellent finish. The liner is a nonwoven front laminated to activated carbon spheres bonded to a tricot knit back. Glove candidates could be liners for wear under existing gloves, a CB glove, or a combination glove shell and separate liner. Candidates must be more durable. The JASQ II must have the same characteristics as JSLIST.

Load Carriage-Related Equipment



Enable Soldiers to carry mission-essential equipment with minimal effect on mobility and survivability.

Description and Specifications

The All-Purpose Lightweight Individual Carrying **Equipment (ALICE)** - Fighting Load Belt and Suspenders have carriers for transporting basic loads of ammunition, fragmentation grenades, canteen, Entrenching Tool (E-Tool), first aid items, compass, and bayonet knife. The Compression Sack compresses clothing and spare items and reduces bulk up to 50 percent. The **E-Tool** is used for digging in the field and is "D" handled, collapsible, and used as a shovel. The **Mattock** provides a more efficient digging tool than the E-Tool. The Mattock has a 12-inch steel head with mattock and axe blades, and a wooden 24-inch handle. It cuts tree roots and limbs, breaks rock, and loosens ground more easily. The Equipment Belt Extender (EBE) is a 4-inch equipment belt and has triple layers of 2.25-inch wide webbing with loops at each end for threading buckles. The Field Case holds a first aid kit or compass and is attached to the equipment belt or suspenders with a slide keeper.

The **Combat Patrol Pack** is Cordura nylon with nylon webbing, has a polyurethane-coated nylon spin drift collar with closure cord, cord lock, drainage and spin-drift grommets, and plastic hardware that is used during assaults on obstacles and targets that do not require sustainment loads.

The **Medium Field Pack** carries the existence load with or without a frame and has a main pouch, draw cord closure, and three outside pockets and hangers to carry equipment.

The **Large Field Pack** provides an efficient and comfortable method of transporting loads and has an internal frame and a low profile shape.

The **Field Pack Cover** is a layer of fabric with an elastic cord sewn in the hem; it fits over a large or

medium field pack and is white, three-color desert camouflage, or four-color woodland camouflage. When removed, it can be used as a combat patrol pack. Field pack straps and the pack frame help carry a field pack or are used to carry water cans, ammunition cases, and other equipment.

The **40mm Grenade Vest** is used by Soldiers armed with the M203 or M79 grenade launcher and has permanently-attached, open-ended pockets that accommodate 14 high-explosive and four pyrotechnic rounds. It is worn with the individual equipment belt over body armor.

The **Combat Medic Vest (CMV)** is designed to carry 40 percent of the medic's load and provides efficient organization of medical equipment.

The **Individual Tactical Load-Bearing Vest** has permanently attached ammunition and grenade pockets and is compatible with the standard equipment belt.

Military Police and Law Enforcement Equipment



CLOTHING AND INDIVIDUAL EQUIPMENT

Mission

Facilitate law enforcement by Military Police with appropriate tools and equipment.

Description and Specifications

The Military Police (MP) Law Enforcement Ensemble includes an equipment belt, flashlight holder, chemical spray holder, baton holder, radio holder, handcuff case, dual magazine pouch, ambidextrous and removable flap holster, and belt keepers. Components are made of Cordura nylon and other heavy duty materials. The white nylon Disposable Restraint System (DRS) is a self-locking restraint band that encircles wrists or ankles and requires a cutting tool for removal.

The Family of Batons and Nightsticks (FBN) consists of two collapsible batons made from hard aluminum and polycarbonate materials, with grip handles; a straight baton with a side-handle for patrol use and an extended-length civil disturbance control baton. The latest material technology in batons and nightsticks, they provide Soldiers with an intermediate level of force, lessening the need to resort to deadly force.

The Family of Restraint Systems (FORS) comprises existing restraint systems, as well as new or improved restraint devices to provide a standardized prisoner/detainee control capability for MPs, guard forces, or commander authority. FORS includes existing leg irons, the full body restraint system, and the new improved metal handcuff, the temporary cinch strap, and DRS.

The shoulder-carry **Mid-Size Riot Control Disperser**, **M37 (MRCD)** system includes a pressurized riot agent tank with a spray nozzle. This MP nonlethal, personal defensive system covers the gap between vehicle-mounted systems and dismounted Soldier systems, adding flexibility in conducting crowd control operations and protecting individual Soldiers. Additional uses include segregation of belligerents, hostage rescue, and capture of criminals and terrorists.

The Law Enforcement (LE) and Special Reaction Team Bags are Soldier Enhancement Programs (SEP). The LE is the smaller bag and is designed for everyday use in LE vehicles for carrying flashlights, batons, maps, flares, first aid kits, flex-cuffs, and other equipment. The larger Special Reaction Team/Civil Disturbance (SRT/CD) bag is designed to hold the special equipment used for civil disturbance operations (helmets, vests, gloves, batons,

knee and elbow guards, and other equipment).

Both will be bags constructed of durable 1000 denier fabric (minimum) and be water resistant. Both will have carrying handles and a removable/adjustable shoulder strap. Both bags will have a fully accessible main compartment to provide a full view of the bag's contents. The LE bag will be 20 inches long by eight inches wide and 12 inches high, and have five exterior pockets (two of which will be open). This bag will have specialty exterior sleeves for flashlight, baton, and cuffs.

The SRT/CD bag is oversized at approximately 28 inches long by 10 inches wide and 14–20 inches high. The bag will have a closed side pocket (28 x 2–4 x 14–20 inches) that allows moisture to escape for storing tactical body armor that may have gotten wet after use.

The Individual Riot Control Agent Disperser (IRCAD) is a disperser that can deliver at least 15 one-second bursts of one of several approved riot control agents (RCA), or a training device capable of replicating the characteristics of the IRCAD with an inert solution. The IRCAD will be used by individual MPs and by other Soldiers in dismounted tactical security operations, military operations in urban terrain (MOUT), LE, and SRT/CD operations in a wide variety of tactical environments when authorized by the commander and applicable law and treaties.

Search Mirrors (SM), readily available commercially, may be categorized as either individual pocket (tactical SM) or large living area viewing security types (inspection SM). Optional features consist of telescopic extension, integrated illumination, multiangle viewing, and wheels. Inspection SMs enable searches of vehicles or other modes of conveyance at checkpoints, gates, roadblocks, and dismount points where missions dictate and enable confinement facility personnel to search tight spaces. Tactical SMs enable Soldiers conducting MOUT to see around corners, into rooms, and over/around obstacles without exposure to threats.

Modular Lightweight Load-Carrying Equipment (MOLLE)



CLOTHING AND INDIVIDUAL EQUIPMENT

Mission

Enable Soldiers to tailor individual loads to meet mission needs with modular, flexible, load-carrying equipment.

Description and Specifications

The Modular Lightweight Load-Carrying Equipment (MOLLE) system was designed and developed to replace the All-Purpose Lightweight Individual Carrying Equipment (ALICE) and Integrated Individual Fighting System (IIFS).

The MOLLE consists of a modular rucksack with removable compartments and components and a fighting load carrier that can accept removable pockets for rifleman, pistol, squad automatic weapon, medic, and grenadier configurations. For short-duration missions, there is an assault pack and waist pack. The modularity allows individuals to tailor the load to meet mission needs.

The **Tactical Thigh Holster Extender (TTHE)** system is designed for the mounted or dismounted Soldier to attach to the Army Combat Uniform trouser belt to provide the ability to lower the holster to arms length while standing, as well as place the holster in a ready access position while seated. The TTHE will work with the Soldier Enhancement Program (SEP) initiative M9/M11 Pistol Mount Interface with or without the Integrated Laser/White Light Pointer (ILWLP), also a SEP program.

Mountaineering Equipment



Enable Soldier mobility in ascending or descending mountainous terrain.

Description and Specifications

The **Snow Wire Anchor** provides security in steep ascents. The **Ice Axe** is used to dig through snow or ice. **Cam Action Ascenders** are rope-gripping devices that climbers use to pull themselves up along a rope. The **Figure-8 Descender** allows steep incline rappelling.

The **Piton Hammer** is used to drive all types of rock and ice pitons. The **Rock and Ice Hammer** is used to hammer pitons into cracks in rock and has an ice climbing pick. **Ice Pitons** provide security by screwing into ice formations. **Angle Pitons** are driven into rock cracks in steep ascents. The **Cliffhanger Piton** hooks onto rock edges and flakes. The **Flat General Pitons**, **Offset Knifeblade Pitons**, and **Mountain Pitons** are driven into rock. **Wired and Hexagon Stoppers** provide security during steep ascents by placing the stoppers into cracks in the rocks.

The **Full-Body Climbing Harness** gives the climber freedom of movement by attaching the rope harness. The **Kernmantle Rope** secures climbers and equipment in steep ascents, descents, and bridging and can be used to haul equipment. **Crampon Protectors** are intended to cover the points of the crampons to protect climbers from injury and equipment from damage. **Crampon Straps** keep the crampon firmly affixed to the climber's footwear.

The **Mountain Rescue Pulley** is used for hauling equipment and for emergency rescue. The **Nonlocking Mountain Piton Snap Link** is D-shaped and used to clip running rope to various anchors or to fasten pieces of rope sling or hardware together quickly and securely. The **Locking Mountain Piton Snap Link** is used in rappelling and erecting fixed rope installations.

The Special Operational Forces (SOF)

Mountaineering Equipment Set (SOFME) provides

Special Operations Soldiers with equipment to maintain mobility in mountainous, glacial, and snow-packed terrain. SOFME consists of 39 items provided for 12-man SOF teams. The set contains general purpose rock hammers, ice axes, ascenders, three types of snap links, descenders, five types of pitons, eight sizes of stoppers, two sizes of irregular hexagon stoppers, cliff hangers, two sizes of piton ice screws, full body climbing harnesses, mountain rescue pulleys, crampons, two sizes of snow anchors, two sizes of tubular webbing, and five sizes of rope/accessory cord.

Parachute, MC1 Series



Enable parachuting Soldiers to steer toward a specific impact point in the drop zone into winds up to 13 knots via a static line-deployed parachute usable by small teams during airborne operations and training.

Description and Specifications

The **Parachute, MC1 Series** is deployed using either a 15-foot or 20-foot static line, allowing the parachutist to be delivered by either C-130 or C-17 U.S. Air Force aircraft. The parachute is a parabolic shape with a H-TC shape configuration in the rear, with 60 square feet of canopy removed. This enables the canopy to turn 360 degrees in 7.7 seconds with a forward thrust of 8 knots (9.5 mph) or 14 feet per second. Depending upon air density and the jumper's total weight, the average rate of descent is 18 feet per second. Total suspended weight limitation is 360 pounds. The parachute has:

- Nominal diameter of 35 feet
- Thirty suspension lines
- Two control lines
- Mesh anti-inversion net

The parachute assembly consists of five components:

- Pack tray
- Troop harness
- Deployment bag
- Riser
- Canopy

The parachute has a combined service life of 16.5 years; service life is 12 years and shelf life is 4.5 years. The parachute must be repacked every 120 days. It is made of nylon cloth, webbings, and cords commonly used in the manufacturing of parachutes.

Parachute, T-10D



Enable the safe delivery of the parachutist, weapon systems, and equipment to the drop zone in winds up to 13 knots.

Description and Specifications

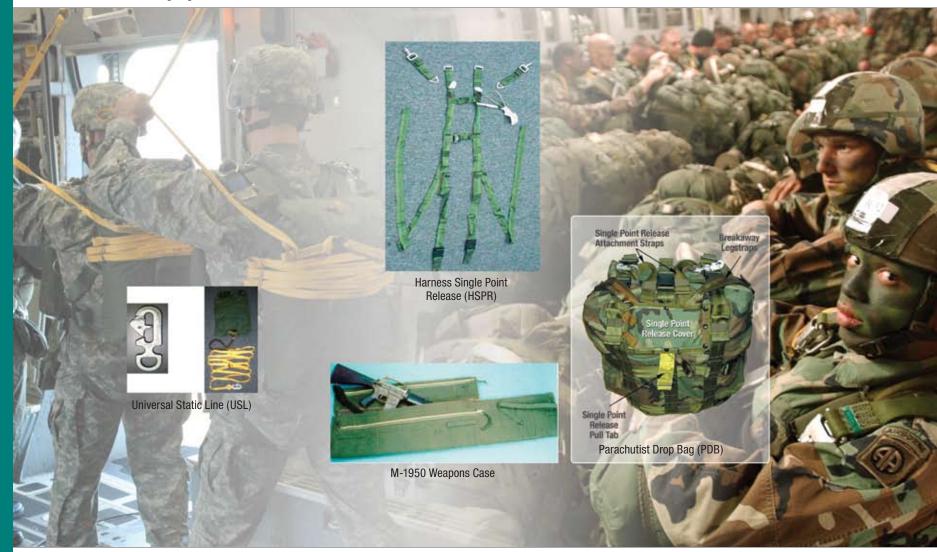
The static line-deployed **T-10D Parachute** is used for combat mass assault airborne operations and training. Depending upon air density and the jumper's total weight, the average rate of descent for the parachute is 22 feet per second; total suspended weight limitation is 360 pounds. The parachute is deployed using either a 15- or 20-foot static line, allowing the parachutist to be delivered by either C-130 or C-17 U.S. Air Force aircraft.

The T-10D main parachute is a parabolic shape and has a nominal diameter of 35 feet. 30 suspension lines, and a mesh anti-inversion net.

The T-10D Parachute assembly consists of five components: pack tray, troop harness, deployment bag, riser, and canopy. The parachute has a combined service life of 16.5 years; service life is 12 years and shelf life is 4.5 years. The T-10D Parachute must be repacked every 120 days. The T-10D Parachute is made of nylon materials commonly used in the manufacturing of parachutes.

The Modified Improved Reserve Parachute System (MIRPS) includes a standard T-10 reserve parachute canopy assembly integrated with a commercial deployment assistance device, composed of a bridle line. pilot parachute, and spring. The pack tray includes a line bag for stowing suspension lines and an inner staging flap that holds the reserve parachute until sufficient tension is achieved through the bridle/pilot parachute assembly during deployment. The MIRPS pack tray is slightly larger than that of the T-10 reserve pack tray so it accommodates a larger pilot chute, spring, and bridle. The pack tray has a yellow stripe along the rip cord protector flap and is made of nylon textile materials commonly used to make parachute systems.

Parachutist Equipment



Provide means to secure individual equipment to the parachutist during movement in the aircraft, during exit, and main parachute deployment; and provide the means to secure mission-essential equipment.

Description and Specifications

The Harness, Single-Point Release (HSPR) assembly is used to secure equipment to the parachutist and is made of nylon webbing with friction adapters, two adjustable leg straps, two D-ring attaching straps, and lowering line. The harness is secured around the equipment load and allows for a simultaneous release of the load and leg straps from the parachutist and parachute harness.

The **Parachutist Drop Bag (PDB)** is a commercial. load-carriage item incorporating a single point release; it is used with 7- or 15-foot lowering lines when conducting static line military free-fall parachuting operations. It has exterior pockets for easy access to maps and water and can be worn front- or rearmounted. The retention strap consists of nylon webbing with an attachment eyelet in the center and hook and pile tape on each end of the strap.

The Universal Static Line (USL) is composed of a 15-foot static line, a 5-foot extension, and a snap hook. During C-17 operations, the extension is added to the 15-foot static line, thereby meeting the requirement for the 20-foot length. USL is made of waterrepellent coated and textured tube-edge 6.6 nylon.

The M-1950 Weapons Case is a padded case made of cotton duck or nylon designed to carry individual or crew-served weapons. It protects both the jumper and

weapon from injury/damage during airborne operations. It must be rigged with a lowering line when the case and weapons weight is more than 35 pounds.

Personal/Optional Clothing and Equipment



Provide a variety of standard issue and new clothing, insignia, and personal equipment to enhance fit, comfort, alterability, and appearance.

Description and Specifications

Gold-Plated Anodized Insignia replaces the clothing bag yellow brass insignia. The Beret is the standard issue headgear, and the garrison cap worn with the Class A and B uniforms was eliminated. The All-Weather Coat functions as a raincoat and a topcoat. The Maternity Cardigan Sweater is an optional item worn with maternity service uniforms. The Woman's Service Uniform was redesigned, improving fit, comfort, alterability, and appearance. The Women's Dress Mess Uniform is an optional dress uniform for formal, social events. The Men's Green Class A Service Uniform consists of a coat, trouser, shirt, necktie, belt, and buckle. The Class B Service Uniform omits the coat and tie if the short sleeve shirt is worn.

In March 2003, the Chief of Staff, Army (CSA) approved an optional purchase overcoat for wear by Soldiers who want more warmth and a dressier appearance than that provided by the All-Weather Coat. Anodized goldplated accoutrements that do not require polishing are optional purchase items. The beret is a one-piece, unlined wool shell with leather headband, draw cord, and lined badge-stay for attachment of insignia. The standard beret is black; airborne Soldiers wear maroon berets, Special Forces wear green, and Rangers wear tan berets. All-weather coats are double-breasted with a six-button front; set-in sleeves; pointed, button-down shoulder and sleeve straps; a front gun patch flap; two vertical welt pockets with pass-through slits; belt; center back pleat vent and half cape back; in black poly/cotton blend. The maternity sweater is a V-neck cardigan, longer in front than in back with elbow and shoulder patches, epaulets with hook-and-loop attachments, and a six-button front. Poromeric Oxfords are plain-toed with removable cushioned insoles, skid resistant soles, and breathable comfort lining. The Women's Class A Uniform consists of slacks, skirt, coat, shirt, neck tab, belt, and buckle.

The Class B Service Uniform omits the coat or coat and neck tab, depending upon the shirt worn. The Women's Dress Mess Uniform has a waist-length jacket with ornamented sleeve, long or short skirt, and formal white blouse with ruffled front and dome-shaped buttons.

The Cardigan Sweater, White (Optional), is a Vneck cardigan design with a rib knit trim around the front opening and neckline and rib knit cuffs, two lower front pockets, and a six button front.

Sleeping and Shelter Systems Equipment



Provide combat personnel with modular-concept sleep equipment that allows for environmental and physical comfort in a variety of situations.

Description and Specifications

The Modular Sleeping Bag System (MSBS) is a bagwithin-a-bag concept. MSBS consists of a camouflaged, water resistant, breathable bivy cover, lightweight patrol and intermediate cold weather sleeping bags, and a compression sack to store and carry the system. When the patrol and intermediate bags are mated together, the combined system provides extreme cold weather protection in temperatures ranging above -30 degrees Fahrenheit. Used individually, the lightweight patrol bag provides protection between 35 and 50 degrees Fahrenheit. The bivouac cover can be used in any configuration (warm, intermediate, or extreme cold weather). Sleeping bags are made of rip-stop nylon and filament polyester insulation; camouflage covers are breathable, coated nylon; the Compression Sack is water-resistant durable nylon. The system is augmented by use of insulated layers of the Extended Cold Weather Clothing System (ECWCS).

The **Sleeping Mat** is a camouflage green, closed cell polyethylene foam pad with two tying straps permanently attached to secure the mat when in a rolled configuration and is used with the MSBS by placing it under the system, providing insulation from the cold ground and improving comfort.

The **Self-Inflating Sleeping Mat** is used in the same manner as the sleeping mat, but the self-inflating mat has an open cell foam core sandwiched between, and laminated to, an air impermeable, coated nylon fabric with a plastic valve in one corner. It inflates by unrolling it and opening the air valve at one corner of the mat, allowing air to enter the mat.

The **Improved Combat Shelter (ICS)** is a versatile, lightweight, freestanding shelter for the Infantry Soldier that will replace the current Shelter Half. It provides

protection from rain, wind, and snow in all terrains. It is easy to assemble/disassemble and designed for carry in the rucksack or attachment to the equipment belt. The ICS configuration has recently been type classified. The ICS consists of a basic shelter component with floor, tent sides/overhead, insect screening, and poles and pins; a tent fly for wet weather protection; and a carry bag.

Snow/Ice Mobility Equipment



Enhance Soldier movement in snow or ice-covered terrain.

Description and Specifications

The Alpine and Cross Country Ski Bindings consist of a toe wire, heel clamp, binding retainer and sole plate, which is hinged at the toe. Engaging the binding from this retainer allows the heel to lift for cross-country skiing. The binding has a bilateral release mechanism. They fasten skis to boots for downhill and cross-country skiing. Gaiters cover the area where boots meet trousers and provide additional protection from snow and the elements.

The **Aluminum Shaft Adjustable Ski Poles** are used by Soldiers on snow-covered terrain and consist of an adjustable aluminum shaft with plastic hand grips, snow rings, and nylon wrist straps.

Trail Snowshoes enable improved movement over snow-covered terrain. The snowshoe consists of a magnesium frame laced with nylon-coated steel cable and a binding made of a pad/claw with nylon webbing, and metal hooks and buckle for attaching the snowshoe to the boot.

The ski equipment Repair Kit comes in a nylon case and contains screwdrivers, scraper, file, pliers, hand drill, emergency ski tip, 1/8-pound steel wool; ski pole handgrip assembly, expansion plugs, basket assembly, and structural adhesive kit; spool of wire. abrasive cloth, filament reinforced tape, polyethylene repair candles, and climbing skin adhesive.

Hinged Crampons prevent slipping when walking on ice or ascending steep ice faces. They are made of chromium molybdenum steel and are black or gold with an epoxy coating. They have 12 spikes and an adjustable center hinge to adjust the length of the crampon. They are fully adjustable in width to be compatible with the standard military vaporbarrier boots, the standard ski/mountain boot, and

commercial plastic-shell mountaineering boots, with the aid of a big foot centerpiece when necessary. The crampons have six attachment points for twoinch wide binding straps and are furnished with all the tools necessary to assemble and adjust them.

The Military All-Terrain Skis have grooves for attaching mohair climbers and are made of fiberglass with a foam or wood core, with steel edges, polyurethane tip and tail protectors, and polyethylene bases.

Toxicological Ensembles



Protect personnel working in highly toxic, oxygendeficient, or unknown environments that are immediately dangerous to life and health.

Description and Specifications

A critical need exists for improving the M3 Toxicological Agents Protective (TAP) suit that has been the military standard for Army Level 1-A protection for 40 years. The Improved Toxicological Agent Protective (ITAP) ensemble will provide protection during peacetime and wartime for short-term operations. ITAP will be deployed in "immediately dangerous to life and health" (IDLH) toxic chemical environments (up to one hour), emergency lifesaving response, incident response, routine chemical activity operations, and initial entry monitoring.

The Self-Contained Toxic Environment Protective **Outfit (STEPO)** is a totally encapsulating system that provides protection for personnel working in highly toxic, oxygen-deficient, or unknown environments that are IDLH, STEPO will replace the M3 Toxicological Agents Protective (TAP) ensemble in highly toxic areas (OSHA Level-A environments), while the ITAP ensemble will still be used for routine chemical activity operations in non-IDLH environments. Individuals must be capable of working in toxic environments during peace and wartime conditions.

In environments that exceed IDLH standards, individuals must have an alternate life support system for short-term entry and lifesaving. STEPO is composed of five layers of Nomex and Teflon: the integral hood is made of three layers of Nomex and Teflon, STEPO provides the wearer with clean, closed circuit breathing air rather than the filtered air provided in the TAP ensemble. It provides four hours of percutaneous protection against chemicalbiological agents, toxic industrial chemicals, unknown chemicals, rocket fuels, petroleum, oil, and lubricants. It also provides respiratory protection and cooling and is compatible with user radios. The gloves are neoprene/butyl.

Urban Utility Equipment, Grappling Hook and Micro-Rappel System (MRS)



CLOTHING AND INDIVIDUAL EQUIPMENT

Mission

Enable entry or escape from potentially volatile situations and a means to gain entry or exit from second or higher floors with lightweight, portable, and reusable devices.

Description and Specifications

The **Grappling Hook, Collapsible (GHC)** can support loads of 1,800 pounds or more without bending and can be folded, collapsed, or retracted into a more compact shape (cube) between 60–100 cubic inches. It allows Soldiers to hand loft the item (with attached climbing rope) over obstructions or through building apertures. It can be secured to a structure by extended tines, thereby aiding in ascending or descending objects or buildings. The GHC is compatible with standard Soldier equipment and clothing. GHC can be carried in a rucksack, backpack, or Modular Lightweight Load-Carrying Equipment cargo pocket.

The Micro-Rappel System (MRS) augments existing rappel ropes, provides an option for rappel activities, and is used when weight or bulk problems prevent use of the standard military rope system. It is made of aluminum or tempered steel in anodized black or other subdued finish. The three adopted variants range between 1.4 to 1.6 pounds each. MRS is five millimeters thick and weighs 1.6 pounds per 100 feet (.73 kilograms per 30.5 meters) compared to the current static rope, which is one-half inch (12.7 millimeters) and weighs 7.2 pounds per 100 feet (3.2 kilograms per 30.5 meters). The MRS consists of a rappel harness, descender, carabiner, deployment bag, and 82 feet of five-millimeter rope. It weighs less than 2.75 pounds. Tensile strength exceeds 3.000 pounds, which equals a safety factor of 10 for a 95th percentile Soldier with equipment. With leg straps stowed, the MRS harness can be used as a belt. The system permits safe and efficient descent from rooftops, windows, or steep terrain. MRS is Cordura nylon and Technora, with metal alloys in black.

The **Tactical Assault Ladder System (TALS)** is a man-portable, adjustable height system capable of being assembled, emplaced, and used in three minutes or less. TALS weighs approximately 40 pounds. TALS is subdued

in color and will not interfere with movement techniques or weapons emplacement while being carried or climbed.

Utility Gloves





Men's and Women's Anticontact Gloves



Men's and Women's Heavy Duty Gloves



Barbed Wire Handler's Gloves

Protect Soldiers' hands in a variety of situations, settings, and temperatures.

Description and Specifications

The waterproof Intermediate Cold Wet Glove (ICWG) protects hands in conditions of approximately zero to 40 degrees Fahrenheit. Worn alone or over lightweight inserts, the March 2005 redesign eliminates the flexor design and lists performance characteristics to allow for the United States to supply many waterproof/breathable membranes.

Barbed Wire Handler's Gloves offer protection when handling barbed tape or wire and similar materials. A four-finger-and-thumb Clute design with a five-inch gauntlet, their split leather cowhide palms are lined with cotton flannel; the gauntlet areas with cotton duck. The palm and the palm side of the fingers and thumb are reinforced with leather strips stapled one-quarter inch apart.

Men's and Women's Anticontact Gloves are worn in cold climates to protect against cold burns caused by touching cold metal objects and when performing tasks requiring good dexterity. They are an unlined Gunncut design made of fabric with a leather palm.

Men's and Women's Heavy Duty Gloves are Gunn-cut of cowhide or horsehide and intended for heavy work, with an adjustable strap and buckle on the back. The gloves have a continuous thumb inseamed all around, with a leather welt inserted in the thumb seam. The seam at the base of the fingers incorporates a reinforcing leather welt, turned up to cover the stitching. An additional layer of leather reinforces the palm. The ambidextrous Cold Weather Glove Inserts are knitted fabric designed to be worn under other gloves to provide extra protection from cold.

The **Combat Glove** is used in field operations to protect Soldiers' hands while navigating in rough terrain and moving objects. The Combat Glove consists of 96 percent Kevlar® and four percent P140 conductive anti-flash fiber. Snug and form fitting, it is reinforced in exactly the areas most needed for combat operations—including fast roping and rappelling—without interfering with dexterity or tactility. The back and fingers of the glove increase cut and flame protection with a unique blend knit. The leather surrounding the knuckles, fingers, and palm is classified under MIL-DTL-81188C. The finger lining is made of 100 percent Nomex®;

thread materials consist of 100 percent Kevlar classified under MIL-A-A-55195. The cuff consists of cloth lining and an elastic wristband. The cloth portion of the glove is inherently fire resistant Kevlar that does not melt or drip and can be laundered without losing its fire retardant properties.

The **Light Duty Work Glove/Utility Glove** is multifunctional but is normally worn for performing light work and is a bag item. The glove uses a flexor design, which improves durability through fewer seams in the finger portion, and incorporates a three-dimensional shape with less bulk.

Fuel Handlers Glove (FHG) will protect against kerosenebased fuels (JP-8). FHG will consist of Nomex knit with leather palms, and will be liquid-proof and flame resistant to provide fuel handlers' with protection, performance, and compatibility, and to maximize protection and comfort. It will be green, and have a full Gore-Tex® direct grip glove insert for waterproofing.

Protective Ensemble consists of three components: riot control glove, cut protective glove, and forearm guard. This glove ensemble has excellent dexterity and tactility and will be used by the Military Police in pat-down situations and to provide Soldiers with cut and puncture protection.

Utility Uniforms and Accessories



Neckerchief, Brown



Hot Weather Hat



Insect Net



Poromeric Cook's Shoes



Brown Bath Towel



T-Shirt and Riggers Belt

Improve Soldier comfort with climate-appropriate utility uniforms and accessories that function as combat clothing or duty uniforms.

Description and Specifications

The Army Combat Uniform (ACU) consists of a jacket, trousers, and patrol cap in a new, universal camouflage pattern, sand-color moisture wicking T-shirt and improved hot weather and temperate weather Army combat boots. The ACU was constructed with direct and continuous involvement of Soldiers throughout the design and evaluation process. The result is a combat uniform with improved functionality and greater Soldier acceptance than the current Battle Dress Uniform (BDU).

The Cold Weather Coat (Field Jacket) may be worn with all utility uniforms as an outer garment. The BDU coat is a bush-type design with breast and lower pockets with flaps and reinforced elbow patches. The trousers have four standard-type pockets, two leg pockets with flaps. and reinforcement patches at the knees and buttocks. The uniform is loose fitting, allowing body ventilation. Materials are water repellent and treated cotton/nylon. static-dissipating fiber ripstop poplin weave. Uniforms come in desert and woodland camouflage patterns. Headgear is constructed using the same materials and in the same patterns. The Combat Cap and Neckerchief are used in field and garrison environments with the temperate and hot weather BDUs. It is similar in design to the BDU cap, but the retractable ear flaps are flannel lined. The neckerchief is knitted cotton iersev cloth that provides protection against the sun and functions as a sweat cloth.

The Cold Weather Coat is lined, hip-length, with a bi-swing back, convertible stand-up collar with adjustable tab closure, horizontal slide fastener closure on the collar, an attached hood with draw cord adjustment, two piece set-in sleeves, adjustment tab cuff closure, shoulder loops with button closure, slide fastener fly-front closure with snap fasteners, two bellows-type breast pockets and two lower inside hanging pockets with snap fastener flap closures. waist and hem draw cords, and inside buttons for attaching

the insulating liner. The coat is a cotton and nylon blend. wind resistant sateen fabric. It is available in the same patterns as the BDU. **Drawers** have sloped elasticized leg openings and an elastic waistband; the undershirt has quarter length sleeves with a crewneck; both are brown cotton. The black or green wool sock is worn with all boots.

The **Poromeric Cook's Shoes** are water- and slip-resistant and comfortable for extended wear. They were adopted after a market search and evaluation of commercial offthe-shelf footwear for use in garrison dining facilities.

The Improved Mechanics Coveralls (IMC) are lighter and more comfortable than old mechanic's coveralls, with hookand-pile sleeve and leg closures, reinforced knees, elbows. seat, underarm ventilation, and added pockets. The V-neck. long-sleeved, pullover sweater has a convertible collar and a five-button neck front and acts as a warm undergarment.

The Insect Hat and Insect Net are worn in tropical and semitropical areas when helmets are not worn. The hat has a soft crown and stitched brim, chin strap, and camouflage band. The net attaches to the hat by an elastic cord with two loops at the bottom to fasten buttons. The **Brown Bath** Towel is 20 x 40 inches and is issued to Soldiers in the clothing bag for use in garrison and field environments.

Wet Weather Outer Garments



Improved Rainsuit (IRS)



Wet Weather (WW) Parka and Trousers (WWPT)



Poncho Wet Weather Camouflage

Enhance Soldier comfort and effectiveness with individual wet weather outer garments that include adjustable features to meet changing environments and activities.

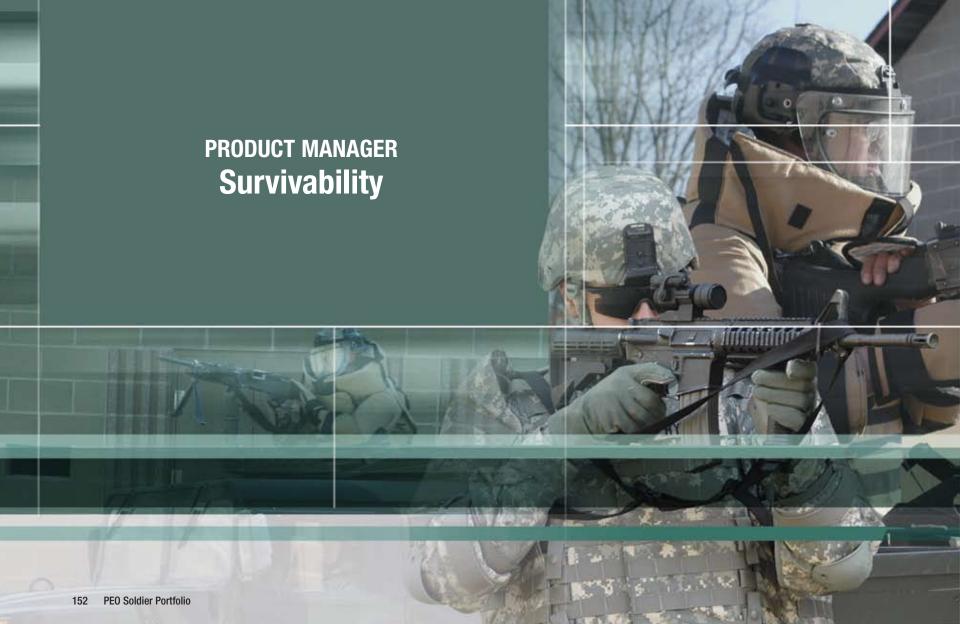
Description and Specifications

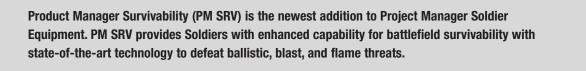
The Improved Rainsuit (IRS) parka and trousers are made with a waterproof, moisture-vapor-permeable, polyurethane back-side-coated nylon material with a durable water repellent finish, in woodland camouflage print, for improved comfort and appearance. The design is less bulky and better fitting than the Wet Weather (WW) Parka and Trousers (WWPT). The IRS parka will accept the standard, button-in field jacket liner when additional insulation is required. It has underarm ventilation slide fasteners, front insignia tab, and adjustable toggle closures at the hood and bottom hem. The IRS trousers have slide fastener adjustable closure bottom leg hems for easier donning and doffing without removal of boots. IRS replaces the WWPT.

The WW Parka is a mid-length, raglan sleeve constructed garment that consists of an attached hood, full zipper front. The material is a lightweight, double-coated (face and back), waterproof, non-breathable coated material. It has a hook-and-pile closure on each sleeve cuff at the juncture of the front of the hood and the body of the parka, slash-through pocket openings, a draw cord in the hood's opening, and an elastic draw cord at the bottom. The WW Trouser consists of an ankle-length trouser with a drawcord in each leg hem, slash-through pocket openings, suspender loops, waist-to-crotch fly front with no zipper, and a waist drawcord.

The lightweight **WW Poncho** is used by Soldiers as a waterproof, rain protective garment, ground sheet, foxhole cover, and sleeping bag with the poncho liner and can be joined with another poncho to form a temporary tent. The wet weather poncho is rectangular, with an attached hood that has a drawcord around

the face opening. Male and female snap fasteners are down each side so that the front and back of the poncho can be joined together to form a temporary tent.







Body Armor



Protect Soldiers and increase their survivability against bullet and fragmentation threats.

Description and Specifications

Each new generation of **Body Armor** is designed to offer the Soldier increased protection and comfort over older versions, stopping or slowing bullets and fragments and reducing the number and severity of wounds. The **Interceptor Body Armor (IBA)** is a joint service item designed and developed to incorporate the requirements of the Army and Marines. This system was designed to replace the Personal Armor System Ground Troops (PASGT) Vest with the Interim Small Arms Protective Overvest (ISAPO).

IBA is the model name for modular, multiple-threat body armor, consisting of the Outer Tactical Vest (OTV). Small Arms Protective Insert/Enhanced SAPI (SAPI)/(ESAPI), Deltoid and Axillary Protector (DAP), and the Enhanced Side Ballistic Insert (ESBI). Eight sizes of OTV and five sizes of front and back ergonomically designed SAPI/ESAPI ballistic plates are being fielded. The basic system weight (OTV and SAPI) is 15.7 pounds (size medium), which is 9 pounds lighter than the PASGT/ISAPO combination. The OTV. without plates, weighs 7.7 pounds (size medium) and protects against fragmentation and 9mm rounds. The SAPI/ESAPI plates provide additional protection and can withstand multiple small arms hits. There are attachable throat and groin protectors for increased protection and webbing loops on the front and back of the vest for attaching pouches from the Modular Lightweight Load-Carrying Equipment (MOLLE).

The **Deltoid and Axillary Protector (DAP)** is a component of the IBA that provides additional protection from fragmentary and 9mm projectiles to the upper arm and underarm areas. During Operation Iraqi Freedom combat operations, the side and underarm areas not covered by the OTV and ballistic plates were identified

by combat commanders and medical personnel as a vulnerability that needed to be addressed.

The **Enhanced Side Ballistic Insert (ESBI)** component of the IBA was developed to further counter this vulnerability and provide improved individual Soldier protection. The ESBI consists of two ambidextrous modular components, the Carrier Assembly and the Ballistic Insert. The Carrier Assembly attaches to the OTV by using the webbing on both the front and back of the carrier and can be further secured through incorporation with the DAP. The ESBI can utilize both the 7 x 8 inch ESBI and the Extra Small ESAPI. The ESBI will be issued in sets, which consists of two each carriers and two each inserts. These features allow commanders/leaders to tailor Soldier loads to meet mission needs.

ESBI Component Materials: Carrier-Cordura, Kevlar and/or Twaron; **Ballistic Insert**-Hard ceramic tile with ballistic fabric backing

Color: The ESBI will be available in the Universal Camouflage (UC) pattern

Weight: 7.1 pounds per set

Size: One size fits all

Body Armor, Cupola Protective Ensemble (CPE)



CLOTHING AND INDIVIDUAL EQUIPMENT

Mission

Protect U.S. forces in Iraq from the blast overpressure and fragmentation effects of rocket propelled grenades (RPGs) and improvised explosive devices (IEDs) while manning crew-served, weapon-ring mount cupolas on military vehicles such as HMMWV, 5-Ton Truck, and Stryker Armored Vehicles.

Description and Specifications

The Cupola Protective Ensemble (CPE) is a modified countermine ensemble with a blast and fragmentation protective visor, trousers, jacket, front and rear blast plates, and an upper torso cooling system. The CPE is worn over the standard Interceptor Body Armor, extending protection to the head, neck, face, and extremities. The integrated cooling system offsets heat effects. A contoured Kevlar neck guard provides protection for neck and temporal lobes. The CPE consists of the following:

- · Base jacket with rigid sleeve inserts
- Blast Plates
- Sleeves (left and right) with rigid composite inserts (forearm and bicep)
- Blast plate assembly chest and groin
- Rear blast plate
- Pants and integrated groin protector (IGP)
- Removable explosive ordnance disposal collar
- Optional neck/nape guard
- Visor System worn with Personnel Armor System Ground Troops (PASGT) or Army Combat Helmet (ACH)
- Hand Guards
- Liquid Cooling Vest





PROJECT MANAGER Soldier Weapons

Project Manager Soldier Weapons (PM SW) supports Soldiers through the development, production, and procurement of future and current weapon systems, ammunition, and associated target acquisition/fire control products. Soldiers are equipped with the best products industry has to offer, resulting in decisive overmatch capability through increased lethality and range, as well as decreased weight. Two Product Managers under PM SW drive the mission: Product Manager Individual Weapons and Product Manager Crew Served Weapons.

In addition to weapons and ammunition, PM SW manages development and procurement of suppressors, weapons accessory kits, optics, tripods, mounts, and binoculars.





Product Manager Crew Served Weapons (PM CSW) manages light to heavy machine guns, grenade launchers, sniper systems, research and development of small arms ammunition, and related fire control/acquisition products. PM CSW is responsible for the development of all future crew served weapon systems. These future weapons will increase lethality and enhance reliability.



Ammunition Research, Development, Testing, and Evaluation



Proximity Fuzed Ammunition



XM110 Day/Night Trainer



25mm Low Velocity Airburst Ammunition



25mm High Velocity Airburst Ammunition



XM1037 Short Range Training Round for M249



XM1041/XM1042 Close Combat Mission Capability Kit



XM1022



Lightweight Ammunition

Manage the research, development, testing, and evaluation of ammunition products for use in small arms weapon systems.

Description and Specifications

XM1037 Short-Range Training Round for M249: This ammunition for 5.56mm weapon systems has a maximum range of 250 meters and an effective training range of 25 meters. It is used with M4, M16, and M249 series weapons with no weapon modification.

XM1041/XM1042/XM1072 Close Combat Mission Capability Kit: This commercially available system contains a soft projectile filled with a colored dye and weapon modification kits. It allows realistic force-on-

weapon modification kits. It allows realistic force-onforce training by providing a felt impact signature. The weapon modification kits prevent use-of-service ammunition in the force-on-force training environment.

XM1068 12 Gauge Extended Range Non-Lethal

Cartridge: The XM1068 Cartridge is a Soldier Enhancement Program that will type classify a new 12-gauge Non-Lethal (NL) cartridge with extended range capabilities. This cartridge will supplement the current suite of NL munitions with a capability ranging from 5-30 meters.

Lightweight Ammunition: The lightweight ammunition program will reduce weight of the 7.62mm ammunition by a minimum of 20 percent. Weight savings will be obtained by utilizing new technologies to fabricate the cartridge case in lieu of the standard brass cartridge case. Technologies to be explored include alternative composite materials.

Proximity Fuzed Ammunition: The proximity fuzed ammunition program will design a fuze applicable to 25mm and 40mm munitions. The proximity fuze technology will be applied to obtain increased suppression, door breaching, and NL capabilities.

XM110: 40mm Day/Night TP-cartridge: designed to produce an impact signature visible both day and night; It fires from the M203/XM320 Grenade Launchers.

XM1022 Caliber .50 Sniper Category: A Caliber .50 cartridge used for anti-personnel capability in the M107 Long Range Sniper Rifle. The cartridge complements the MK211 cartridge. It also provides a non dud-producing training capability for the M107.

M2 Heavy Barrel (HB) (Enhanced) .50 Caliber Machine Gun (M2E2)



CREW SERVED WEAPONS

Mission

Provide increased lethality and survivability on the battlefield over the standard M2 Heavy Barrel Machine Gun by modifying it to make it easier and safer to employ.

Description and Specifications

The M2 Heavy Barrel (HB) (Enhanced) .50 caliber Machine Gun (M2E2) is a .50 caliber machine gun that offers the Soldier the proven performance and in-place logistics support of the existing M2HB machine gun, along with new features and design improvements that make it easier and safer to use. Upgrades such as a fuzed headspace and timing configuration, the Quick Change Barrel (QCB) system, and manual safety will increase the performance of the battle-proven M2.

The QCB system speeds target engagement and improves survivability and safety due to reduced time in changing the barrel. The flash hider reduces muzzle flash, making the M2 night-vision friendly. A patented, three-slot barrel retention system ensures secure barrel locking and alignment. All of these capabilities ensure that the commander has constant firepower and less downtime. These upgrades can be fitted to existing M2HB weapons.

M101 Common Remotely Operated Weapon Station (CROWS) and CROWS-Lightning



CREW SERVED WEAPONS

Mission

Provide Soldiers with the ability to acquire and engage targets while inside an armor-protected vehicle, using a common mounting station.

Description and Specifications

M101 Common Remotely Operated Weapon Station (CROWS) is a vehicle-mounted weapon station that enables under-armor/remote operation of weapons. CROWS is designed to mount on a variety of vehicle platforms and supports the MK19 Grenade Machine Gun, .50 Caliber M2 Machine Gun, M240B Machine Gun, and M249 Squad Automatic Weapon. It increases engagement range, first-roundhit probability, and operational response time.

CROWS is a two-axis stabilized mount that contains a sensor suite and fire control software, allowing on-the-move target acquisition and first-burst target engagement. The CROWS sensor suite includes a daytime video camera, second-generation forward looking infrared (FLIR), and laser rangefinder, enabling target engagement under day and night conditions.

CROWS allows the Soldier to view a target independent of gun elevation. Its manual/emergency backup operation capability offers improved firing stability over the current pintle mount.

More than 80 systems were urgently fielded in support of Operation Iraqi Freedom (OIF) and have saved numerous lives from Improvised Explosive Devices (IED) and sniper fire.

CROWS-Lightning is also a vehicle-mounted weapon station that enables under-armor/remote operation. CROWS-Lightning uses the M240B Medium Machine Gun, the M249 Squad Automatic Weapon, and XM307 Advanced Crew Served Weapon. Based on the CROWS concept, CROWS-Lightning provides performance characteristics similar to CROWS: increased engagement range, increased first-round-hit probability, and increased operational response time on a variety of vehicles incapable of mounting

the MK19 Grenade Machine Gun or the M2 .50 Caliber Machine Gun due to vehicular weight limitations. The CROWS-Lightning program is being executed in conjunction with the Rapid Equipping Force.

M107 Semi-Automatic Long Range Sniper Rifle (LRSR)



GREW SERVED WEAPONS

Mission

Enable sniper teams to employ greater destructive force against light materiel and personnel targets at longer ranges and higher rates of fire.

Description and Specifications

The M107 Semi-Automatic Long Range Sniper Rifle (LRSR) is a commercial, off-the-shelf, anti-materiel and counter-sniper semi-automatic, direct-line-of-sight .50 caliber rifle. Based on the Marine Corps M82A3 Special Application Scoped Rifle, it greatly exceeds the terminal effect capability of the M24 (7.62mm, bolt-action). It can complete missions that cannot be accomplished with current sniper rifles. It supplements a sniper role by supporting combat operations to discriminatingly and precisely engage high-value targets and provide a counter-sniper capability, especially in military operations in urban terrain engagements, with greater firepower and standoff ranges to improve sniper survivability.

The rifle is a reliable weapon system, capable of delivering precise rapid fire on targets out to 2,000 meters. Major components include: rifle with detachable 10-round box magazine, variable-power day optic sight, hard carrying case for storage and transportation and protection, soft case for tactical operations, bipod, detachable sling, extra magazines, cleaning/maintenance equipment and manuals. Maximum overall length is 57 inches. Weight with components attached is no more than 35 pounds. The M107 fires standard .50 caliber ammunition with the MK211 .50 caliber, multipurpose cartridge designated as the primary tactical round.

M145 Machine Gun Optic



Enable better target detection, identification, and improved hit probability with a telescopic sight for the M240B Medium Machine Gun and M249 Squad Automatic Weapon in the light machine gun role.

Description and Specifications

The M145 Machine Gun Optic (with anti-reflective device) provides machine gunners with the capability to detect, identify, and engage targets at extended ranges. The three-to-four power magnification and wide field of view make this product configurable to mission profiles, operational modes, and environmental conditions. The M145 is part of the Rapid Fielding Initiative. It fits on the M240B for Infantry, Armor Cavalry, Special Forces, and Combat Engineer Units. In a light machine gun role, it fits on the M249.

M192 Lightweight Ground Mount for Machine Guns









Provide a stable, lightweight, easy-to-use, low-profile mounting platform for the M249 SAW LMG and M240B MMG for delivering controlled, sustained, and accurate fire at extended ranges to support combat operations in offensive and defensive roles.

Description and Specifications

The M192 Lightweight Ground Mount for Machine Guns is a compact and collapsible ground mount for light and medium machine guns, complete with an integrated traverse and elevation mechanism. At 11.5 pounds, it reduces Soldier combat load and improves Soldier mobility.

M2 .50 Caliber Machine Gun



Improve Soldier effectiveness and lethality via a versatile, automatic weapon that provides automatic weapon fire for offensive and defensive operations, in either ground or vehicle mounted roles.

Description and Specifications

The M2 .50 Caliber Machine Gun is automatic, belt-fed, recoil-operated, and air-cooled. It mounts on the M3 tripod and on most vehicles and serves as an anti-personnel and anti-aircraft weapon. It is highly effective against light armored vehicles, low- and slow-flying aircraft, and small boats. The M2 provides automatic weapon suppressive fire for offensive and defensive purposes. It is capable of single-shot (ground M2) and automatic fire.

M24 Sniper Accessory Kit



- Wind Meter
- Improved Cleaning Kit
- Polarized Filter
- Improved Adjustable Bipod
- Shooter's Stock Pack

- Marksman Data Book
- Weapon Drag Bag
- Ammo Pouch
- Analog Ballistic Calculator

Improve overall sniper performance for M24 sniper rifle teams with ancillary equipment.

Description and Specifications

The M24 Sniper Accessory Kit includes a wind meter, improved cleaning kit, polarized filter, improved adjustable bipod, shooter's stock pack, marksman data book, weapon drag bag, ammo pouch, and analog ballistic calculator.

M24 Sniper Weapon System (SWS)



Enable sniper teams to engage enemy personnel forces with a 7.62mm bolt action rifle using precision fire at extended ranges.

Description and Specifications

The M24 Sniper Weapon System (SWS) is a 7.62mm bolt-action, six-shot, repeating rifle, chambered for the .308 WIN M118 special ball ammunition. Components include a day optic sight with 10 power magnification and adjustable focus, metallic iron sights, deployment kit, cleaning kit (rifle and optic), soft rifle carrying case, optic and system cases, operator's manual and an optional bipod.

Associated support items of equipment include a Sniper Night Sight and an improved spotting scope. The SWS is a non-developmental item. The combat weight with sling, day optic, and full magazine is 14.25 pounds, 17 pounds with bipod and tools. Maximum effective range is 800 meters, and the length is 40.75 inches.

M240B 7.62mm Medium Machine Gun



Provide significantly improved reliability and more lethal, medium support fire for ground units such as infantry, armor, field artillery, and combat engineers.

Description and Specifications

The M240B 7.62mm Medium Machine Gun is a variant of the M240 mounted on Bradley Fighting Vehicles and Abrams tanks, reconfigured for ground applications with buttstock, bipod, iron sights, and forward rail assemblies. With a maximum range of 3,725 meters, the M240B currently demonstrates 41,667 mean rounds between stoppage (1,800 required) and 83,000 mean rounds between operational mission failure (15,000 required).

M240B Combat Ammo Pack





Enable the direct attachment of a lightweight ammunition magazine/container to the M240B Medium Machine Gun.

Description and Specifications

The **M240B Combat Ammo Pack** holds 50-100 rounds of linked 7.62mm ammunition and protects the linked belt from dirt and debris. It allows better movement of the M240B during initial insertions and engagements.

M240B Weight Reduction Program



Reduce Soldier combat load by reducing the weight of the M240B without compromising reliability.

Description and Specifications

The **M240B Weight Reduction Program** is intended to reduce the weight of the existing M240B by four pounds (minimum) to seven pounds (objective).

This program will evaluate high-performance lightweight materials and alternate manufacturing methods in fabricating major M240B components. These improvements will reduce the Soldier's combat load while allowing easier handling and movement of the weapon.

M240H 7.62mm Machine Gun (Aviation Version)



Improve the self-protection capabilities of Black Hawk and Chinook helicopter crews by replacing the aging M60D Machine Gun.

Description and Specifications

The M240H 7.62mm Machine Gun (Aviation Version) is designed for aviation application and demonstrates reliability equal to the M240B. It delivers two minutes of continuous suppressive fire and is removable/employable in a ground role.

M249 200-Round Soft Pack



Provide a durable, reusable M249 Pack similar to the combat proven 100-round hard pack.

Description and Specifications

The M249 200-Round Soft Pack Program is a followon effort to the soft packs provided under the Rapid Fielding Initiative (RFI). Based on requests from the field, RFI fielded a 200-round soft pack for the M249 designed to improve weapon retention and reduce the noise signature associated with the standard plastic ammunition container. The program will evaluate all potential candidates and select the 200-round soft pack that meets program requirements.

M249 Squad Automatic Weapon (SAW)



Fulfill automatic rifle role in infantry squads and provide light machine gun capabilities in combat service/combat service support units.

Description and Specifications

The M249 Squad Automatic Weapon (SAW) serves as automatic rifle and light machine gun to infantry squads. The M249 weighs 22 pounds with 200 rounds of ammunition. It replaced the M16A1 Automatic Rifle at the squad level and some M60 several-purpose machine guns in non-infantry units.

M249 Squad Automatic Weapon (SAW) Collapsible Buttstock



CREW SERVED WEAPONS

Mission

Provide the Soldier using the M249 Squad Automatic Weapon with a more secure weapon/shoulder interface in both extended and collapsed positions.

Description and Specifications

The M249 Squad Automatic Weapon (SAW) Collapsible Buttstock will allow the weapon to be fired from the shoulder in the extended and collapsed positions, unlike the current product. It maintains a vertical buttstock position for full interface with the operator's shoulder at all times and provides intermediate, locking firing positions. Weapon control improves when fired in confined spaces such as military operations in urban terrain and air assault operations. Additionally, the buttstock allows ease of ingress/egress from Stryker Brigade Combat Team (SBCT) vehicles and reduces storage space requirements in SBCTs.

M249 Squad Automatic Weapon (SAW) Improved Bipod



Enhance bipods for the M249 Squad Automatic Weapon to improve durability.

Description and Specifications

The M249 Squad Automatic Weapon (SAW) Improved Bipod leverages the design of the existing bipod and incorporates several features that improve the performance of the M249 weapon. The configuration of the bipod has changed, providing a rugged design that is more durable than the previous version. The result is increased reliability and weapon accuracy. Additionally, the length of the bipod legs can be adjusted to different heights, providing improved stability on uneven terrain.

M25 Stabilized Binoculars



Enhance surveillance and battle image assessment with high-powered, stabilized binoculars.

Description and Specifications

M25 Stabilized Binoculars have 14-power optics that will allow Soldiers to identify targets and assess battle damage at extended ranges while providing increased on-the-move sighting capability. They are direct view optical devices (in the day mode) and have accessory night vision image intensifier lenses.

The M25 is stabilized by a precision miniature gyroscope mounted on a gimballed platform in the middle of the optical pathway. The platform holds the prisms; if they are held steady, the image remains steady regardless of the movement of the objective and eyepiece lenses. It is powered by two AA batteries that provide at least eight hours of use. The precision optics in the M25 enable extremely high resolution that roughly equates to the user being able to see a golf ball a mile away.

MK19 Grenade Machine Gun



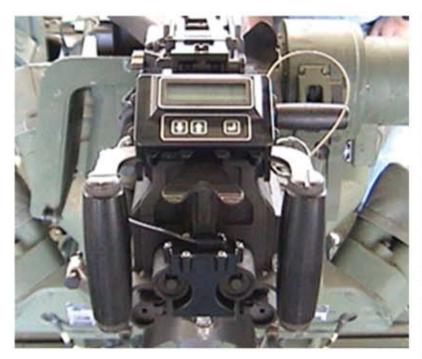
Provide the Soldier with offensive and defensive support via a tripod- or vehicle-mounted grenade machine gun capable of engaging personnel and light armor targets out to 1,500 meters and providing suppressive fire to 2,000 meters.

Description and Specifications

The MK19 Grenade Machine Gun supports the Soldier in offensive and defensive roles by delivering a heavy volume of close, accurate, and continuous firepower against enemy personnel and lightly armored vehicles. The MK19 can be mounted on a tripod or on multiple vehicle platforms and is the primary suppressive weapon for combat support and combat service support units. The weapon can be used to protect motor movements, assembly areas, and supply trains in bivouac.

In addition, it can defend against hovering rotarywing aircraft, destroy lightly armored vehicles, fire on suspected enemy positions, and provide high volumes of fire into an engagement area and indirect fires from defilade (hidden) positions. The MK19 increases the capability of U.S. forces to defeat opposing armored, mechanized, and infantry forces with high-explosive dual-purpose (HEDP) ammunition. Effective (sight) range is 1,500 meters. Maximum range is more than 2,000 meters, with a firing rate of 350 rounds per minute.

MK19 Tactical Engagement System (TES)





Enable realistic combat training exercises without using live ammunition.

Description and Specifications

The MK19 Tactical Engagement System (TES) Simulation Player Unit (SPU) consists of a Laser Module, Operator Module, Audio Cue Device (ACD), and Trigger Assembly. The Laser Module emits visible flash cues and an invisible (infrared) laser beam toward a target. A blue LED Laser Firing Indicator located on the rear of the Laser Module provides the gunner with a visible indication that the laser has fired. A target is outfitted with a detector assembly that senses the laser beam from the Laser Module to cause a target kill or near miss.

The Operator Module provides the individual with the means to display ammo type, ammo remaining, and the selected range. The Ammo Select allows the operator to change the ammo type. The Reload Belt resets the ammo loaded count to the maximum for the type selected. (Approximate reload time is one minute.) The Operator Module allows review of events (scrolls through the last series of actions taken). Additional messages that may show up include low battery warning, weapon destroyed, and bit failure.

The Trigger Assembly senses the MK-19 firing trigger and signals the Laser Module and Operator Module to fire the laser. The ACD provides realistic sound effects.

Separate support equipment includes a Controller Gun (CG), used by the controller of the training exercise. The MK-19 SPU system kit includes alignment targets for performing boresight verification and an interface bracket to mount the ACD on a tripod or pintle mount.

XM110 7.62mm Semi-Automatic Sniper System (SASS)







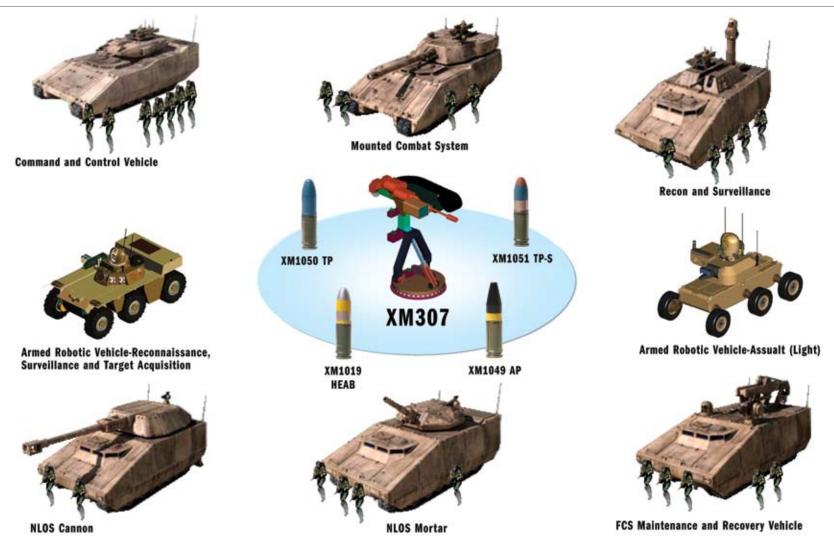
CREW SERVED WEAPONS

Supplement the sniper's role to support combat operations with greater firepower and greater possible standoff ranges to improve sniper survivability.

Description and Specifications

The XM110 7.62mm Semi-Automatic Sniper System (SASS) is effective against personnel and light materiel targets. Capable of rapid fire/rapid reload, this suppressed sniper rifle exceeds the rate-of-fire and lethality of the M24 Sniper Weapon System. SASS is lighter than the M24 and its anti-personnel ranges are equal to or greater than M24. SASS includes an enhanced sniper spotting scope.

XM307 Remotely Operated Variant (XM307ROV) 25mm Advanced Crew Served Weapon (ACSW)



CREW SERVED WEAPONS

Mission

Provide vehicle and weapon squads with decisive overmatch capability with high explosive air burst and armor-piercing ammunition.

Description and Specifications

The XM307 Remotely Operated Variant (XM307ROV) 25mm Advanced Crew Served Weapon (ACSW) is the Common Close Support Weapon (CCSW) for eight Future Combat Systems (FCS) vehicle platforms. Originally, the ground mounted XM307 was selected as the CCSW, but FCS has redirected the program to design a fixed gun that integrates dual feed and remote operation capabilities to meet FCS unique requirements. The XM307ROV maintains the same recoil mitigation system from the XM307 to allow for significant weight savings in the mount. Lethality is provided by high explosive air burst (HEAB) ammunition, being developed in parallel with the weapon development. Armor piercing (AP) ammunition development will start in FY09. The dual feeder will provide first round response. In addition to remote operations for safely charging and firing the weapon, many sensors have been added to provide feedback on the status and state of the weapon. The FCS vehicle's target acquisition and full solution fire control will be used with the XM307ROV. However, the necessity to set the fuze and point the weapon resulted in the development of a target acquisition and fire control surrogate to support testing and ammunition development.

XM307 Ground Mounted 25mm Advanced Crew Served Weapon (ACSW)



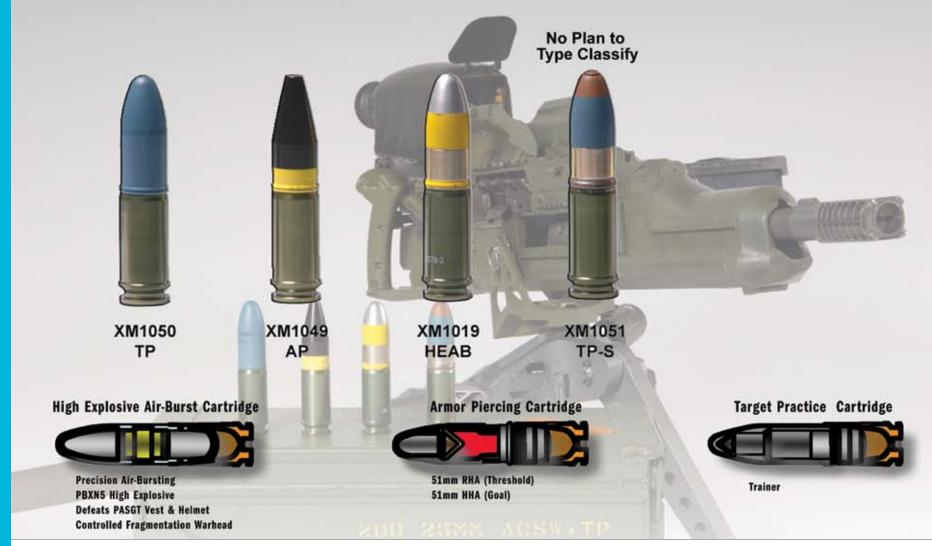
Provide vehicle and weapon squads decisive overmatch capability with high explosive air burst and armor-piercing ammunition.

Description and Specifications

The XM307 Ground Mounted 25mm Advanced Crew Served Weapon (ACSW) can replace selected MK19 Grenade Machine Guns and M2 Heavy Machine Guns. This next-generation crew served weapon system will dramatically increase lethality and effective range. Lethality is provided by high explosive air burst (HEAB) and armor piercing (AP) ammunition.

The XM307 Ground Mounted variant development has ceased. The weapon's recoil mitigation system allows the gun and tripod to realize significant weight savings in comparison with the legacy M2 and Mk19 systems. For vehicle-mounted applications the low recoil translates into a significant savings in support structure weight. The XM307 is a flex gun that can be easily dismounted from a vehicle and carried into a ground operation by its two-man crew. This system will require the development of a portable target acquisition and full solution fire control system that incorporates a laser rangefinder, ballistic computer, direct view optics, video sight, electronic compass, thermal sensor, environmental sensors, and a motion tracker.

Advanced Crew Served Weapon (ACSW) 25mm Family of Ammunition



CREW SERVED WEAPONS

Mission

Provide vehicle and weapon squads with decisive overmatch capability with high explosive air burst and armor-piercing ammunition.

Description and Specifications

The Advanced Crew Served Weapon (ACSW)
25mm Family of Ammunition being developed in parallel with the weapon development will provide lethality to the XM307 family of weapons. The high explosive air burst (HEAB) ammunition will be capable of defeating not only exposed targets, but also defilade targets that have taken cover behind structures, terrain features, and/or vehicles at ranges out to 2,000 meters. The armor piercing (AP) ammunition will be capable of defeating lightly armored materiel targets at ranges to 2,000 meters. The results will be decisively violent and suppressive target effects that will provide a leap ahead in crew served weapons performance. The target practice (TP) ammunition provides low-cost live-fire training.

XM312 Lightweight Machine Gun .50 Caliber Advanced Crew Served Weapon (ACSW)



Provide vehicle and weapon squads with a very lightweight .50 caliber weapon system that is easily dismounted from vehicles for ground mount applications.

Description and Specifications

The XM312 Lightweight Machine Gun Advanced Crew Served Weapon (ACSW) is capable of firing all of the current .50 caliber ammunitions in the inventory. This includes, but is not limited to, the standard M33 ball round, the M8 armor piercing incendiary (API), the M903 saboted light armor penetrator (SLAP), and the MK211 multipurpose round that penetrates, fragments, and starts fires. The ammunition needs to be linked with the M15A2 forward stripping link.

The .50 caliber XM312 weapon is derived from the 25mm XM307 ACSW. An XM312 weapon can be created by replacing only four components in the XM307 weapon. The commonality of these two weapons greatly enhances supportability. First, training is simplified, because the principles of operation and the repair procedures will be very similar, reducing operator and maintenance training in scope. Second, spare and repair parts will be significantly reduced in type, quantity on-hand, and manufacturing cost. Safety will be improved through the elimination of the requirement for the operator to adjust headspace and timing. Also, familiarity with one system rather than two separate systems further increases safety.

The XM312 weapon can replace most of the currently fielded M2 .50 Caliber Machine Guns. By replacing the 75-year-old M2 Machine Gun, the Army achieves significant reductions in weight and recoil force. The XM312 weighs approximately one-third as much as the M2 and imparts only one-quarter of the recoil. This lighter weight permits easy dismount and ground transportability when necessary, and the reduced recoil will lead to greater lethality through increased first burst accuracy.



Product Manager Individual Weapons (PM IW) manages and is responsible for research and development of rifles, carbines, pistols, shotguns, grenade launchers, small arms ammunition, and related target acquisition/fire control products. These future weapons will increase lethality and enhance reliability.



Close Quarters Battle Kit (CQB Kit)



Increase Soldier lethality and survivability.

Description and Specifications

The Close Quarters Battle Kit (CQB Kit) will provide several low-cost, commercial off-the-shelf accessories for the M4 Carbine and M16 Rifle. These items were identified by Soldiers during Operation Enduring Freedom, the Joint Readiness Training Center Muddy Boots Council, after action reports, and the Rapid Fielding Initiative (RFI).

The CQB Kit will include:

- Weapon bipod
- · Cleaning kit
- Multi-magazine holder and pouch
- Accessory mounting rail for non-modular weapon system equipped rifles and carbines
- Tactical weapon sling
- Improved magazine

Family of Small Arms Suppressors (FoSAS)



Enable Soldiers to reduce the firing signature of their small caliber weapons, minimizing detection during engagements.

Description and Specifications

The Family of Small Arms Suppressors (FoSAS) program will provide suppressors for the M9 pistol, M4 carbine, M16 rifle, and M249 Squad Automatic Weapon that will attach to the muzzle without the use of tools. FoSAS will reduce the firing signature by reducing the muzzle flash, smoke, noise, and dust normally generated by firing the weapon.

M16A4 Rifle



Increase the lethality and operational flexibility of the Soldier via improvements to the M16A2, the major infantry combat weapon used throughout the U.S. Armed Forces.

Description and Specifications

The fourth-generation M16, the **M16A4 Rifle**, features a performance identical to the M16A2. The M16A4 is a flat-topped M16A2 that incorporates a MIL-STD 1913 rail on top of the weapon's upper receiver. This weapon, when combined with the M5 adapter rail system, is the basis for the M16 version of the Modular Weapon System (MWS).

Physical differences between the M16A2 and M16A4 include a removable carrying handle with an integral rail-mounting system on the M16A4. When the carrying handle is removed, any accessory device with a rail grabber, such as an optical sight, can be mounted on the weapon.

The M16A4 Rifle barrel is designed to accept the M203 Grenade Launcher, which can easily be assembled to the rifle, offering the user both point and area firing capabilities.

Specifications:

Caliber 5.56mm x 45mm NATO

Weight without magazine 7.5 pounds

Empty 30-round magazine 0.25 pounds

Loaded 30-round magazine 1 pound

Overall length 39.6 inches

Barrel length 20 inches

Muzzle velocity 3,100 feet per second

Effective range 600 meters (area target)

Front sight Adjustable front

Rear sight Target sight adjustable

for wind and elevation to 600 meters

Sight radius 19.75 inches

Cyclic rate of fire 700-950 rounds per minute

Fire control selection Safe-semi-3 round burst

Upper receiver Flat top with detachable carrying handle

M16 Rifle Modifications



Increase the lethality and operational flexibility of the M16 Rifle, the major infantry combat weapon used throughout the U.S. Armed Forces.

Description and Specifications

The M16 Rifle Modifications Program procures a modular weapons suite of accessories, including the M5 Adapter Rail System, Backup Iron Sight, M68 Close Combat Optic (CCO), Grenade Launcher Rail System, and other accessories for the M16A4. The M68 CCO (Red Dot Reflex Sight) is a unity power reflex collimator sight for M16A2 and M16A4 Rifles, as well as the M4 and M4A1 Carbines.

The **M68 Sight** allows the Soldier to engage targets with both eyes open while maintaining situational awareness of events happening in close proximity. It eliminates the difficulty of aligning the iron sights. CCO will provide an operational capability under all mission scenarios and environmental conditions.

M4 Carbine



Enhance lethality and operational flexibility by enabling the Soldier to configure the M4 weapon to the mission.

Description and Specifications

The **M4 Carbine** replaces the M3 submachine gun, select M9 pistols, and M16A2 rifles for unit leaders, crew served gunners, vehicle crews, radio operators, light infantry, airborne/air assault, combat engineers, and others. It provides improved firepower compared to the M3 submachine gun and M9 pistol and allows mounting of the latest generation of fire control accessories without tools. One pound lighter than the M16, it provides improved portability compared to the M16A2.

M4 Carbine Modifications



Enhance lethality and operational flexibility by permitting the Soldier to configure the M4 weapon to the mission.

Description and Specifications

The M4 Carbine Modifications procures a Modular Weapons Suite (MWS) of accessories, including M4 Adapter Rails, M68 Reflex Sight, Backup Iron Sight, and other items for the M4 and M4A1 carbines. These rails and accessories are designed to increase lethality and operational flexibility. The accessory product mix varies from year to year, depending on available funding and Soldier needs.

M9 Pistol, M9 Pistol Rail



Enhance lethality, survivability, and situational awareness in close combat situations via an improved pistol with rail attachment capabilities.

Description and Specifications

A semi-automatic, double-action pistol, the M9 Pistol is more lethal, lighter, and safer than its predecessors. The M9 is carried by crew served weapon crewmen and by others who have a personal defense requirement, such as law enforcement personnel, unit leaders, and aviators. It replaces the M1911A1 .45 caliber pistol and the .38 caliber revolver.

The M9 Pistol Rail System will enable the attachment of an Integrated Laser White Light Pointer (ILWLP) to the M9 Pistol, resulting in an increase in lethality and survivability of the Special Forces Soldier or Military Police by providing a tactical advantage in close combat operations. The Rail System enhances situational awareness, enabling the Special Forces Soldier or Military Police officer to identify or designate targets prior to engaging and to rapidly engage multiple targets.

Magnified Combat Optic (MCO)



Provide the Soldier with improved first-round hit capability at distances of zero to 600 meters with current 5.56mm weapons systems.

Description and Specifications

The Magnified Combat Optic (MCO) will improve the capability to recognize and engage targets from zero to 600 meters with the M4 carbine, M16 Rifle, and the M249 Squad Automatic Weapon. The optic will allow Soldiers to rapidly transition between long and close quarter engagements without degrading the ability to conduct reflexive fire techniques.

The optic can be used to scan an area for acquiring and engaging targets. When a target is acquired, the ranging reticle within the optic can be used to obtain an accurate range to the target. An appropriate aiming point on the reticle can then be selected to accurately engage the target.

Individual Airburst Weapon System, XM25



Provide the infantry Soldier with a decisive overmatch capability in a weapon system that will dramatically increase lethality, range, and capability through the use of a family of airbursting ammunition.

Description and Specifications

The Individual Airburst Weapon System, XM25 is the airbursting weapon subsystem of the XM29 Integrated Airburst Weapon System. It fires 25mm high-explosive airbursting (HEAB) munitions. The XM25 incorporates a target acquisition/fire control that integrates thermal, powered direct-view optics, laser rangefinder, compass, fuze setter, ballistic processor, and internal display. The XM25 has a 500-meter range point target and 700-meter range area target capable of defeating defilade (hidden) targets. Spiral development of the XM29 will accelerate fielding of the XM25 subsystem in advance of the dual barrel system. Development of the XM25 will maximize commonality of parts and share the same logistics and supportability resources of the XM29. The XM29 Integrated Airburst Weapon System is planned as the successor to the XM25 in providing the infantry Soldier with a decisive overmatch capability. It combines a kinetic energy weapon and the XM25 airburst subsystem in one weapon. The XM29 will dramatically increase lethality. range, and capability through the use of a family of munitions consisting of HEAB, target practice, blank, armor piercing, and kinetic energy ammunition.

XM26 12 Gauge Modular Accessory Shotgun System (MASS)



INDIVIDUAL WEAPONS

Mission

Enhance Soldier effectiveness with lethal, nonlethal, and door breaching capabilities via a 12-gauge accessory shotgun attachment.

Description and Specifications

The XM26 12 Gauge Modular Accessory Shotgun System (MASS) attaches underneath the barrel of the M4 and M16 Modular Weapon Systems and fires lethal and non-lethal 12-gauge rounds, as well as door breaching ammunition. MASS provides a capability to transition between lethal and non-lethal rounds and is equivalent to a stand-alone shotgun without carrying a second weapon.

XM320 Grenade Launcher Module (GLM)



Provide the Infantry Soldier with a lighter, safer, and more reliable grenade launcher with a day/night sighting capability, as well as the ability to fire all existing and improved 40mm low-velocity ammunition.

Description and Specifications

The XM320 Grenade Launcher Module (GLM) is a 40mm grenade launcher that will replace selected M203 series grenade launchers currently mounted on the M16/M4 series of rifles and carbines. The XM320 is intended to be lighter, safer, and more reliable than current man-portable grenade launching systems and will provide improved lethality by providing a day/night firing capability out to the maximum effective range of current ammunition.

It is also designed to offer an open architecture attachment system for mounting on M16A2, M16A4, and M4 rifles and carbines. XM320 fires in a stand-alone mode with an attached shoulder buttstock and provides a safer, more reliable trigger/firing system, compared to the M203. The weapon will have an unrestricted breach access to allow the use of longer ammunition than currently fielded.

Program Executive Office Soldier integrates 376 programs, enabling the Soldier to dominate the full spectrum of peace and war, now and in the future.

PEO Soldier comprises the following Project Management and special activities offices:

Project Manager Soldier Warrior

Ft. Belvoir, VA

Product Manager Air Warrior Redstone Arsenal, AL

Product Manager Land Warrior Ft. Belvoir, VA

Technology Program Manager Future Force Warrior Ft. Belvoir, VA

Project Manager Soldier Equipment

Ft. Belvoir, VA

Product Manager Clothing and Individual Equipment Ft. Belvoir, VA

Product Manager Sensors and Lasers Ft. Belvoir, VA

Project Manager Soldier Weapons

Picatinny Arsenal, NJ

*Product Manager Crew Served Weapons*Picatinny Arsenal, NJ

*Product Manager Individual Weapons*Picatinny Arsenal, NJ

Rapid Fielding Initiative

Ft. Belvoir, VA

For more information about Program Executive Office Soldier, please contact:

Public Affairs Office 703-704-2802/DSN 654-2802 http://www.peosoldier.army.mil

Acquisition Category (ACAT)

Categories established to facilitate decentralized decision making and execution and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures. The ACATs are listed below:

ACAT I programs are Major Defense Acquisition Programs (MDAPs). An MDAP is defined as a program estimated by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)) to require eventual expenditure for Research, Development, Test, and Evaluation (RDT&E) of more than \$365 million (Fiscal Year (FY) 2000 constant dollars) or procurement of more than \$2.19 billion (FY 2000 constant dollars), or those designated by the USD (AT&L) to be ACAT I. ACAT I programs have two sub-categories:

The USD (AT&L) designates programs as ACAT ID or ACAT IC.

ACAT ID for which the **Milestone Decision Authority (MDA)** is USD (AT&L). The D (in ACAT ID) refers to the **Defense Acquisition Board (DAB)**, which advises the USD (AT&L) at major decision points.

ACAT IC for which the MDA is the DoD Component Head or, if delegated, the DoD Component Acquisition Executive (CAE). The C (in ACAT IAC) refers to Component.

ACAT IA programs are Major Automated Information Systems (MAISs) or programs designated by the Assistant Secretary of Defense for Networks and Information Integration (ASD(NII)) to be ACAT IA.

An MAIS is an Automated Information System (AIS) program that is: 1) designated by the ASD(NII) as an MAIS; or 2) estimated to require program costs in any

single year in excess of \$32 million (FY 2000 constant dollars), total program in excess of \$126 million (FY 2000 constant dollars), or total Life Cycle Costs (LCCs) in excess of \$378 million (FY 2000 constant dollars). MAISs do not include Information Technology (IT) that involves equipment that is an integral part of a weapon system or is an acquisition of services program. ACAT IA programs have two sub-categories:

ACAT IAM for which the MDA is the Chief Information Officer (CIO) of the DoD, the ASD(NII). The M (in ACAT IAM) refers to MAIS.

ACAT IAC for which the DoD CIO has delegated MDA to the CAE or Component CIO. The C (in ACAT IAC) refers to Component.

The ASD(NII) designates programs as ACAT IAM or ACAT IAC.

ACAT II programs are defined as those acquisition programs that do not meet the criteria for an ACAT I program but do meet the criteria for a major system. A major system is defined as a program estimated by the DoD Component Head to require eventual expenditure for RDT&E of more than \$140 million in FY 2000 constant dollars or for procurement of more than \$660 million in FY 2000 constant dollars or those designated by the DoD Component Head to be ACAT II. The MDA is the DoD CAE.

ACAT IIA programs are AIS programs that do not meet the criteria for ACAT IA but are designated by the Army Acquisition Executive (AAE) or Army CIO for Program Manager (PM) management and Army Major Automated Information System Review Council (MAISRC) review. (Army only)

ACAT III programs are defined as those acquisition programs that do not meet the criteria for ACAT I,

ACAT IA, or ACAT II programs. The MDA is designated by the CAE and shall be at the lowest appropriate level. This category includes less-than-major AISs.

ACAT IV are programs in the Army not otherwise designated as ACAT I, II, or III. ACAT IV programs are managed by a systems manager within a materiel command, as opposed to ACAT I-III programs, which are managed by a PM.

Acquisition Phase

All the tasks and activities needed to bring a program to the next major milestone occur during an acquisition phase. Phases provide a logical means of progressively translating B-4 broadly stated mission needs into well-defined system-specific requirements and ultimately into operationally effective, suitable, and survivable systems.

Advanced Technology Demonstration (ATD)

Used to demonstrate the maturity and potential of advanced technologies for enhanced military operational capability or cost effectiveness, and reduce technical risks and uncertainties at the relatively low costs of informal processes. ATDs are funded with Advanced Technology Development (ATD) funds.

Advanced Technology Development (ATD)

Budget Activity (BA) 3 within a **Research**, **Development**, **Test and Evaluation (RDT&E)** appropriation account that includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment. ATD also includes **Concept and Technology Demonstrations (CTDs)** of components and subsystems or system models. The models may be Form, Fit and Function (F3) prototypes or scaled models that serve the same demonstration purpose. Projects typically have a direct relevance to identified

Glossary

military needs. The result of these type efforts are proof of technological feasibility and assessment of subsystem and component operability and producibility rather than the development of hardware for Service use. Program Elements (PEs) funded under this BA typically involve pre-**Milestone** B efforts such as system concept demonstrations, joint and Service-specific experiments or technology demonstrations. **Advanced Technology Demonstrations** are funded with ATD funds. (DoD 7000.14-R)

Block Approach

See Evolutionary Acquisition.

Capability Development Document (CDD)

A document that captures the information necessary to develop a proposed program(s), normally using an **evolutionary acquisition** strategy. The CDD outlines an affordable increment of militarily useful, logistically supportable and technically mature capability. The CDD supports a **Milestone B** decision review. The CDD format is contained in **CJCSM 3170.01**. (CJCSI 3170.01C and CJCSM 3170.01)

Capability Production Document (CPD)

A document that addresses the production elements specific to a single increment of an acquisition program. The CPD must be validated and approved before a **Milestone C** decision review. The refinement of performance attributes and Key Performance Parameters (KPPs) is the most significant difference between the CDD and CPD. The CPD format is contained in **CJCSM** 3170.01. (CJCSI 3170.01C and CJCSM 3170.01)

Commercial and Non-Developmental Items

Market research and analysis shall be conducted to determine the availability and suitability of existing

commercial and non-developmental items prior to the commencement of a development effort, during the development effort, and prior to the preparation of any product description. For ACAT I and IA programs, while few commercial items meet requirements at a system level, numerous commercial components, processes, and practices have application to DoD systems.

Commercial off-the-Shelf (COTS)

Commercial items that require no unique government modifications or maintenance over the life cycle of the product to meet the needs of the procuring agency.

Concept and Technology Development

Concept and technology development refers to the development of a materiel solution to an identified, validated need. During this phase, the **Mission Needs Statement (MNS)** is approved, technology issues are considered, and possible alternatives are identified. In this phase, the initiation concept is approved, a lead component is designated, and exit criteria are established. The leader of the concept development team will work with the integrated test team to develop an evaluation strategy that describes how the capabilities will be evaluated once the system is developed.

Major components of this phase are Concept Exploration, Decision Review, and Component Advanced Development. Concept Exploration evaluates the feasibility of alternative concepts and assesses the merits of these concepts. This phase ends with a Decision Review, at which the preferred concept for the technologies that are available is selected. The Decision Review may also determine whether additional component development is necessary before key technologies can enter **System Development and Demonstration**. Component Advanced Development occurs when the project leader has a concept for the

needed capability, but does not yet know the system architecture. The project exits Component Advanced Development when a system architecture has been developed and the component technology has been demonstrated in the relevant environment or the **Milestone Decision Authority (MDA)** decides to end this effort. This effort is intended to reduce risk on components that have only been demonstrated in a laboratory environment and to determine the appropriate set of subsystems to be integrated into a full system.

Concept Decision (CD)

First decision point of the Defense Acquisition
Management Framework. It authorizes entry into
the Concept Refinement (CR) phase. The principal
document at this decision point is the Initial
Capabilities Document (ICD) which also contains
an approved plan for conducting an Analysis of
Alternatives (AoA). A successful CD does not mean
that a new acquisition program has been initiated since
funding is normally limited to the CR phase which
follows. (DoDI 5000.2) See Program Initiation.

Critical Design Review (CDR)

A multi-disciplined technical review to ensure that a system can proceed into fabrication, demonstration, and test and can meet stated performance requirements within cost, schedule, risk, and other system constraints. Generally this review assesses the system final design as captured in product specifications for each configuration item in the system s product baseline, and ensures that each configuration item in the product baseline has been captured in the detailed design documentation. Normally conducted during the System Development and Demonstration (SDD) phase. (Defense Acquisition Guidebook)

Design Readiness Review (DRR)

Provides for a mid-phase assessment of design maturity during the **System Development and Demonstration (SDD)** phase. According to **DODI 5000.2**, design maturity may be gauged by the number of subsystem and system design reviews successfully completed; the percentage of drawings completed; planned corrective actions to hardware/software deficiencies; adequate Developmental Testing (DT); an assessment of Environmental, Safety and Occupational Health (ESOH) risks; a completed Failure Modes and Effects Analysis (FMEA); the identification of key system characteristics and critical manufacturing processes; an estimate of system reliability based on demonstrated reliability rates: and other indicators, as appropriate.

Developmental Test and Evaluation (DT&E)

- Any testing used to assist in the development and maturation of products, product elements, or manufacturing or support processes.
- 2. Any engineering-type test used to verify status of technical progress, verify that design risks are minimized, substantiate achievement of contract technical performance, and certify readiness for initial **Operational Testing** (OT). Development tests generally require instrumentation and measurements and are accomplished by engineers, technicians, or soldier operator-maintainer test personnel in a controlled environment to facilitate failure analysis.

DODD 5000.1

DoD Directive 5000.1, "The Defense Acquisition System."

DODI 5000.2

DoD Instruction 5000.2, "Operation of the Defense Acquisition System."

Down Select

To reduce the number of contractors working on a program by eliminating one or more for the next phase.

Engineering Change Proposal (ECP)

A proposal to the responsible authority recommending that a change to an original item of equipment be considered, and the design or engineering change be incorporated into the article to modify, add to, delete, or supersede original parts.

Evolutionary Acquisition (EA)

The preferred DoD strategy for rapid acquisition of mature technology for the user according to **DoDI 5000.2**. An evolutionary approach delivers capability in increments, recognizing up front the need for future capability improvements. There are two approaches to achieving an EA: Spiral Development and Incremental Development as noted below:

- 1. **Spiral Development:** In this process, a desired capability is identified, but the end-state requirements are not known at program initiation. Requirements are refined through demonstration, risk management and continuous user feedback. Each increment provides the best possible capability, but the requirements for future increments depend on user feedback and technology maturation. According to DoDD 5000.1, spiral development is the preferred process for executing an EA strategy.
- Incremental Development: In this process, a desired capability is identified, an end-state requirement is known, and that requirement is met over time by developing several increments, each dependent on available mature technology.

First Unit Equipped (FUE) Date

The scheduled date system or end item and its agreed upon support elements are issued to the designated **Initial Operational Capability (IOC)** unit and training specified in the new equipment training plan has been accomplished.

Fiscal Year (FY)

For the United States Government (USG), the period covering October 1 to September 30 (12 months).

Full Operational Capability (FOC)

The full attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics, which is manned and operated by a trained, equipped, and supported military unit or force.

Full Rate Production (FRP)

Contracting for economic production quantities following stabilization of the system design and validation of the production process.

Initial Capabilities Document (ICD)

Documents the need for a materiel approach to a specific capability gap derived from an initial Analysis of Materiel Approaches (AMA) executed by the operational user and, as required, an independent analysis of materiel alternatives. The ICD defines the gap in terms of the functional area, the relevant range of military operations, desired effects and time. It also summarizes the results of Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) analysis and describes why nonmaterial changes alone have been judged inadequate in fully providing the capability. (CJCSI 3170.01C)

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Initial Operational Capability (IOC)

The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics with the appropriate number, type, and mix of trained and equipped personnel necessary to operate, maintain, and support the system. It is normally defined in the Capability Development Document (CDD) and the Capability Production Document (CPD).

Initial Operational Test and Evaluation (IOT&E)

Dedicated Operational Test and Evaluation (OT&E) conducted on production, or production representative articles, to determine whether systems are operationally effective and suitable, and which supports the decision to proceed **Beyond Low Rate Initial Production (BLRIP)**.

In-Process Review/Interim Program Review (IPR)

Review of a project or program at critical points to evaluate status and make recommendations to the decision authority.

Live Fire Test and Evaluation (LFT&E)

A test process to evaluate the vulnerability and/or lethality aspects of a conventional weapon or conventional weapon system. LFT&E is a statutory requirement (Title 10 U.S.C. § 2366) for covered systems, major munitions programs, missile programs, or product improvements to a covered systems, major munitions programs, or missile programs before they can proceed Beyond Low Rate Initial Production (BLRIP). By law, a covered system is any vehicle, weapon platform, or conventional weapon system that includes features designed to provide some degree of protection to users in combat and that is an Acquisition Category (ACAT) I or ACAT II program. (Note: The term "covered system" can also be taken to mean any

system or program covered by Title 10 U.S.C. § 2366, including major munitions and missile programs.)

Joint Requirements Oversight Council (JROC)

Assists the Chairman, Joint Chiefs of Staff (CJCS) in identifying and assessing the priority of joint military requirements (including existing systems and equipment) to meet the National Military Strategy (NMS). The Vice Chairman of the Joint Chiefs of Staff (VCJCS) chairs the Council and decides all matters before the Council. The permanent members include the Vice Chiefs of the U.S. Army (VCSA) and U.S. Air Force (VCSAF), the Vice Chief of Naval Operations (VCNO), and the Assistant Commandant of the Marine Corps (ACMC). The Council directly supports the Defense Acquisition Board (DAB) through the review, validation, and approval of key cost. schedule, and performance parameters at the start of the acquisition process, prior to each milestone review, or as requested by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)).

Low Rate Initial Production (LRIP)

- The first effort of the Production and Deployment (P&D) phase. The purpose of this effort is to establish an initial production base for the system, permit an orderly ramp-up sufficient to lead to a smooth transition to Full Rate Production (FRP), and to provide production representative articles for Initial Operational Test and Evaluation (IOT&E) and full-up live fire testing. This effort concludes with a Full Rate Production Decision Review (FRPDR) to authorize Full Rate Production and Deployment (FRP&D).
- The minimum number of systems (other than ships and satellites) to provide production representative articles for **Operational Test and Evaluation** (OT&E), to establish an initial production base,

and to permit an orderly increase in the production rate sufficient to lead to Full Rate Production (FRP) upon successful completion of Operational Testing (OT). For **Major Defense Acquisition Programs (MDAPs)**, LRIP quantities in excess of 10 percent of the acquisition objective must be reported in the Selected Acquisition Report (SAR). For ships and satellites LRIP is the minimum quantity and rate that preserves mobilization.

Materiel Release Order*

An order issued by an accountable supply system manager (usually an inventory control point or accountable depot or stock point) directing a non-accountable activity (usually a storage site or materiel drop point) within the same supply distribution complex to release and ship materiel.

Milestone (MS)

The point at which a recommendation is made and approval sought regarding starting or continuing an acquisition program, i.e., proceeding to the next phase. Milestones established by DoDI 5000.2 are:

MS A approves entry into the **Technology Development (TD)** phase

MS B approves entry into the System Development and Demonstration (SDD) phase

MS C approves entry into the Production and Deployment (P&D) phase

Also of note are the **Concept Decision (CD)** that approves entry into the **Concept Refinement (CR)** phase; the **Design Readiness Review (DRR)** that ends the **System Integration (SI)** effort and continues the SDD phase into the System Demonstration (SD) effort; and the **Full Rate Production Decision Review (FRPDR)** at the end of the **Low Rate Initial**

Production (LRIP) effort of the P&D phase that authorizes **Full Rate Production (FRP)** and approves deployment of the system to the field or fleet.

Milestone Decision Authority (MDA)

Designated individual with overall responsibility for a program. The MDA shall have the authority to approve entry of an acquisition program into the next phase of the acquisition process and shall be accountable for cost, schedule, and performance reporting to higher authority, including congressional reporting. (DoDD 5000.1)

Mission Need Statement (MNS)

Legacy document. A formatted non-system-specific statement containing operational capability needs and written in broad operational terms. It describes required operational capabilities and constraints to be studied during the Concept Refinement (CR) and Technology **Development (TD)** phases. MNSs that have initiated staffing in the Joint C4I (Command, Control. Communications, Computers, and Intelligence) Program Assessment Tool (JCPAT) (Knowledge Management/ Decision Support (KM/DS) tool) will continue through the normal staffing process, but no new MNSs will be accepted for staffing. Initial Capabilities Documents (ICDs), developed in accordance with CJCSI 3170.01C. will be used instead. Programs that have already completed Milestone A, or beyond, are not required to update the MNS with an ICD. However, no MNS greater than two years old will be used to support a Milestone A (or Milestone B or C for programs proceeding directly to these milestones) acquisition decision. (CJCSI 3170.01C)

New Start

An item or effort appearing in the President's Budget (PB) for the first time; an item or effort that was previously funded in basic or applied research and is

transitioned to **Advanced Technology Development** (**ATD**) or engineering development; or an item or effort transitioning into procurement appearing in the PB for the first time in the investment area. Often confused with program initiation, an acquisition term that describes the milestone decision that initiates an acquisition program.

Non-Developmental Item (NDI)

A NDI is any previously developed item of supply used exclusively for government purposes by a Federal Agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement; any item described above that requires only minor modifications or modifications of the type customarily available in the commercial marketplace in order to meet the requirements of the processing department or agency.

Off-the-Shelf

Procurement of existing systems or equipment without a **Research, Development, Test and Evaluation (RDT&E)** program or with minor development to make system suitable for DoD needs. May be commercial system/equipment or one already in DoD inventory. See **Commercial and Non-Developmental Item**.

Operational Capability

The measure of the results of the mission, given the condition of the systems during the mission (dependability).

Operational Requirements Document (ORD)

Legacy document. A formatted statement containing performance and related operational performance parameters for the proposed concept or system. ORDs will be accepted for Joint Staff review until late December 2003. After this date, only ORD updates/annexes, Capability Development Documents

(CDDs) and Capability Production Documents
(CPDs) developed in accordance with CJCSI 3170.01C
will be accepted. A validated and approved ORD,
developed under CJCSI 3170.01A or CJCSI 3170.01B,
may be used to support a Milestone B or Milestone
C decision in lieu of a CDD or CPD until late June
2005. See Capability Development Document and
Capability Production Document. (CJCSI 31701.01C)

Operational Test and Evaluation (OT&E)

The field test, under realistic conditions, of any item (or key component) of weapons, equipment, or munitions for the purpose of determining the effectiveness and suitability of the weapons, equipment, or munitions for use in combat by typical military users; and the evaluation of the results of such tests.

Operations and Support

The objective of the Operations and Support phase is the execution of a support program that meets operational support performance requirements and sustainment of systems in the most cost-effective manner throughout their life cycle. The sustainment program includes all elements necessary to maintain the readiness and operational capability of deployed systems. The scope of support varies among programs but generally includes supply, maintenance, transportation, sustaining engineering, data management, configuration management, manpower, personnel, training, habitability, survivability, safety, IT supportability, and environmental management functions. This activity also includes the execution of operational support plans.

Preliminary Design Review (PDR)

A multi-disciplined technical review to ensure that a system is ready to proceed into detailed design and can meet stated performance requirements within cost (program budget), schedule (program

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schedule), risk, and other system constraints. Generally, this review assesses the system preliminary design as captured in performance specifications for each configuration item in the system (allocated baseline), and ensures that each function in the functional baseline has been allocated to one or more system configuration items. Normally conducted during the System Development and Demonstration (SDD) phase. (Defense Acquisition Guidebook) See Functional Baseline and Allocated Baseline.

Product Manager (PM)

The Product Manager is delegated authority and assigned responsibility for centralized management of a development or acquisition program that does not qualify for project management. PM positions are usually at the rank of Lieutenant Colonel or GS-14.

Production and Deployment (P&D) phase

The fourth phase of the life cycle as defined and established by **DoDI 5000.2**. This phase consists of two efforts, Low Rate Initial Production (LRIP) and Full Rate Production and Deployment (FRP&D). and begins after a successful Milestone C review. The purpose of this phase is to achieve an operational capability that satisfies the mission need, LRIP is intended to result in completion of manufacturing development to ensure adequate manufacturing capability and to produce the minimum quantity necessary for initial operational test and evaluation. The Full-Rate Production Decision Review considers the cost estimate, manpower, results of test and evaluation, compliance and interoperability certification. Following the completion of a Full-Rate Production Decision Review, the program enters FRP&D.

Production Qualification Test (PQT)

A technical test completed prior to the Full Rate

Production (FRP) decision to ensure the effectiveness of the manufacturing process, equipment, and procedures. This testing also serves the purpose of providing data for the independent evaluation required for materiel release so that the evaluator can address the adequacy of the materiel with respect to the stated requirements. These tests are conducted on a number of samples taken at random from the first production lot, and are repeated if the process or design is changed significantly, and when a second or alternative source is brought on line.

Production Readiness Review (PRR)

A formal examination of a program to determine if the design is ready for production, production engineering problems have been resolved, and the producer has accomplished adequate planning for the production phase. Normally performed as a series of reviews toward the end of **System Development and Demonstration (SDD)** phase or early in **Production and Deployment (P&D)** phase.

Program Initiation

The point at which a program formally enters the acquisition process. Under DoDI 5000.2, program initiation normally occurs at Milestone B, but may also occur at other milestones/decision points depending upon technology maturity and risk. At program initiation. a program must be fully funded across the Future Years Defense Program (FYDP) as a result of the Program Objectives Memorandum (POM)/budget process. that is, have an approved resource stream across a typical defense program cycle, for example Fiscal Year (FY) 2006-2011. Concept Refinement (CR) and **Technology Development (TD)** phases are typically not fully-funded and thus do not constitute program initiation of a new acquisition program in the sense of DoDI 5000.2. This term is often confused with the financial management term new start. See New Start.

Concept Refinement, and Technology Development.

Program Management

The process whereby a single leader exercises centralized authority and responsibility for planning, organizing, staffing, controlling, and leading the combined efforts of participating/assigned civilian and military personnel and organizations, for the management of a specific defense acquisition program or programs, throughout the system life cycle.

Oualification

The formal process by which a manufacturer's product is examined for compliance with the requirements of a source control drawing for the purpose of approving the manufacturer as a source of supply.

Oualification Test

Simulates defined operational environmental conditions with a predetermined safety factor, the results indicating whether a given design can perform its function within the simulated operational environment of a system.

- Activities for the development of a new system or to expand the performance of fielded systems.
- 2. An appropriation.

Soldier Enhancement Program (SEP)†

Approved by Congress in 1989 and revised in 1992 with the aim speeding the "factory to foxhole" process to enhance Soldier lethality, survivability, mobility, command and control, and sustainability with improved weapons and equipment.

Spiral Development

See Evolutionary Acquisition.

Sustainment

- 1. The first effort of the **Operations and Support** (0&S) phase established and defined by **DoDI 5000.2**. The purpose of the Sustainment effort is to execute the support program to meet operational support performance requirements and sustain the system in the most cost effective manner over its life cycle. Sustainment includes supply, maintenance, transportation, sustaining engineering, data management, Configuration Management (CM), manpower, personnel, training, habitability, survivability, environment, safety (including explosives safety), occupational health, protection of critical program information, anti-tamper provisions, Information Technology (IT) (including National Security Systems (NSS)). supportability, and interoperability functions. Sustainment overlaps the Full Rate Production (FRP) and Deployment effort of the Production and Deployment (P&D) phase. (DoDI 5000.2)
- The provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective. (CJCSI 3170.01C)

System Development and Demonstration (SDD)

The third phase of the life cycle as defined and established by DoDI 5000.2. This phase consists of two efforts, System Integration (SI) and System Demonstration (SD), and begins after Milestone B. It also contains a Design Readiness Review (DRR) at the conclusion of the SI effort. A successful Milestone B can place the program in either SI or SD. A program planning to proceed into SD at the conclusion of SI will

first undergo a DRR to confirm that the program is progressing satisfactorily during the phase.

2. Budget Activity (BA) 5 within a Research, Development, Test and Evaluation (RDT&E) appropriation account. Involves mature system development, integration and demonstration to support Milestone C decisions and the conduct of Live Fire Test and Evaluation (LFT&E) and Initial Operational Test and Evaluation (IOT&E) of production representative articles. A logical progression of program phases and development and production funding must be evident in the Future Years Defense Program (FYDP) consistent with DoD's full funding policy. (DoD 7000.14-R)

System Integration

The first effort of the System Development and Demonstration (SDD) phase. A program enters System Integration (SI) when the Program Manager (PM) has a technical solution for the system, but has not yet integrated the subsystems into a complete system. The Capability Development Document (CDD) guides the effort which typically includes demonstration of prototype articles or Engineering Development Models (EDMs). A successful Design Readiness Review (DRR) ends the SI effort. (DoDI 5000.2)

System of Systems (SoS)

A set or arrangement of interdependent systems that are related or connected to provide a given capability. The loss of any part of the system will degrade the performance or capabilities of the whole. (CJCSI 3170.01C)

Test and Evaluation (T&E)

Process by which a system or components are exercised and results analyzed to provide performance-

related information. The information has many uses including risk identification and risk mitigation and empirical data to validate models and simulations. T&E enables an assessment of the attainment of technical performance, specifications and system maturity to determine whether systems are operationally effective, suitable and survivable for intended use, and/or lethal. There are three distinct types of T&E defined in statute or regulation: Developmental Test and Evaluation (DT&E), Operational Test and Evaluation (LFT&E). See Operational Test and Evaluation, Initial Operational Test and Evaluation (IOT&E),

Type Classification (TC)

Process that identifies the life cycle status of a materiel system after a production decision by the assignment of a type classification designation. The process records the status of a materiel system as a guide to procurement, authorization, logistical support, asset, and readiness reporting. Satisfies DoD requirement to designate when a system is approved for Service use. (Army)

Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)); Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics) (OUSD (AT&L))

The OUSD (AT&L) is organized around services, Research and Development (R&D), and materiel acquisition. Several organizational elements report directly to the USD (AT&L) including the Principal Deputy USD (PDUSD (AT&L)), the Director, Defense Research and Engineering (DDR&E), the DUSD (Logistics and Materiel Readiness), and the Director, Ballistic Missile Defense Organization (BMDO). Also, reporting into staff elements within OUSD (AT&L) are a number of Defense agencies such as the

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Defense Logistics Agency (DLA) and the Defense Advanced Research Projects Agency (DARPA).

All acquisition-related definitions are taken from the Defense Acquisition University (DAU) Glossary. For further information on acquisition-related terminology, see DAU's site at http://akss.dau.mil/jsp/Glossary.jsp.

*Those entries marked with * derive from the DoD Dictionary of Military Terms, http://www.dtic.mil/doctrine/jel/doddict/.

†Those marked with the † symbol are adapted from other sources.

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